MORE NEWS, MORE REVIEWS

Macworld

REVIEW! Apple's iSub audio for your iMac

Video star

- **The best DV camcorders tested**
- **iMovie tips and tricks**
- **How to plan your iMac movies**

iTools made easy
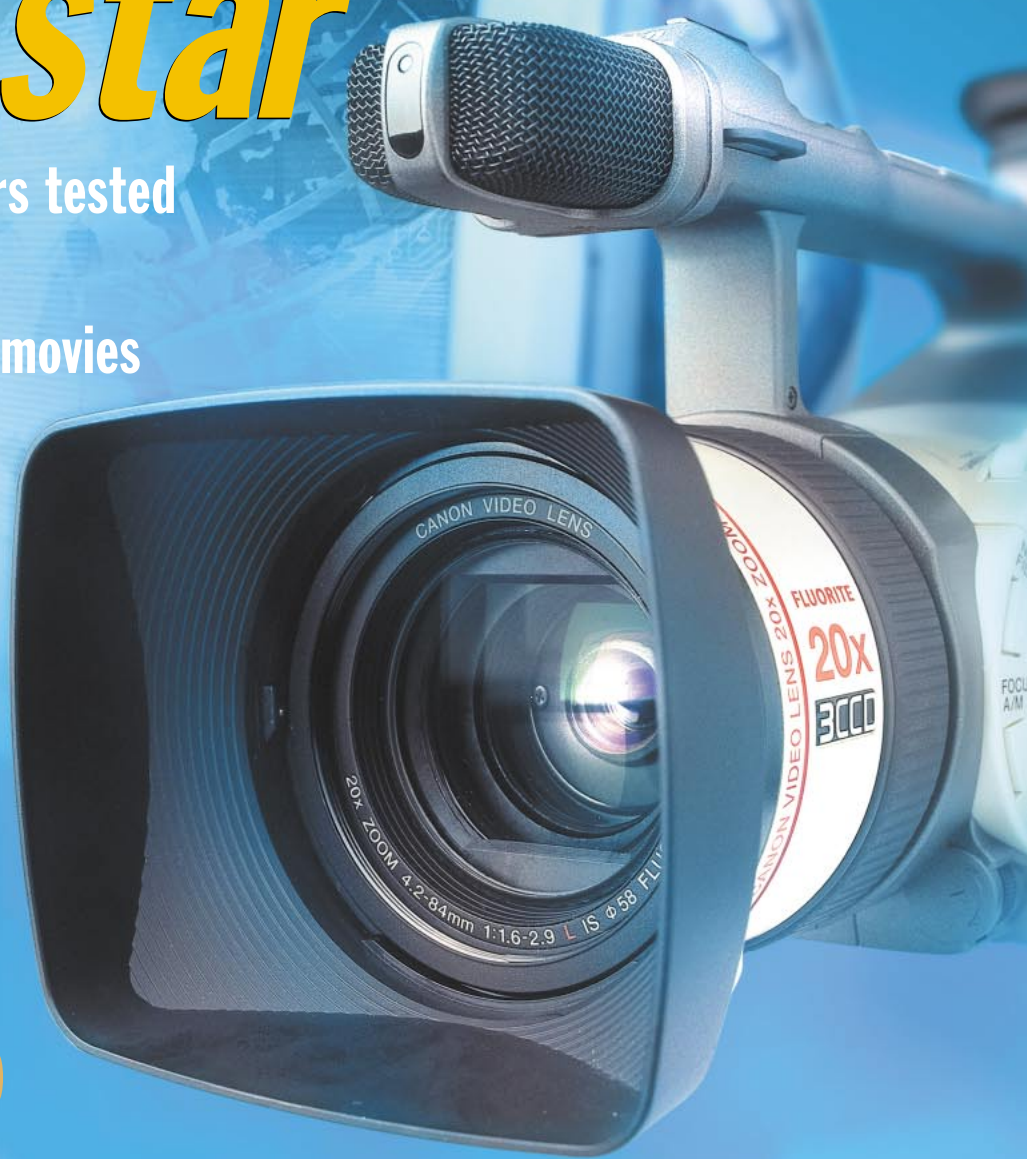Your own Web site in 20 mins

Perfect Palms
Which handheld is for you?

Free Net access
We round up the best deals

Internet Explorer 5.0
New Microsoft Web browser rated

MACWORLD

contents

70 Digital-video movie-making is in the midst of a revolution – and our 12-page feature will arm you with all you'll need to know – from buying digital-video cameras to iMovie editing tips and tricks.

May 2000

read me first

Simon Jary, editor-in-chief

R emember TriMedia – Philips' high-tech media processor that Apple was tickled by before Motorola and IBM developed the PowerPC G3? Many readers probably won't have a clue about this revolutionary technology that never really revolted. Older readers, however, might just hear something click in the back of their heads.

TriMedia is in the news again this month, with Philips spinning off the technology as a separate company – TriMedia Technologies, Inc, which will create and license new processor cores and software for advanced digital consumer products. Examples of these products include digital TVs, advanced set-top boxes, VCRs, and videophones. Sony has already signed up.

Three years ago, Apple was on the verge of doing a deal with Philips to license TriMedia to boost the media-authoring capabilities of its mid-range and high-end Power Macs.

Apple would have bundled TriMedia chips on to PCI cards, installing them in select Power Macs and also selling them separately. One implementation of TriMedia was a card called FireDrill that enabled users to edit MPEG-2 and AC/3 audio for DVD playback. FireDrill would have housed two 100MHz TriMedia processors, 8MB of synchronous DRAM and a FireWire port. At the end of 1996, this sounded like amazing stuff – now, an iMac DV can do all this stuff in Sleep mode.

TriMedia is a fancy digital signal processor (DSP). Way back in 1993, DSPs were Apple's other big new power push for Macs. Pre-PowerPC, Apple's Macs ran on ageing Motorola 680x0 chips – which were falling seriously behind Intel's popular processors. Something had to be done. Before Motorola got to work with IBM on PowerPC, Apple had the bright idea of bolstering performance with specifically targeted DSPs.

Apple picked some AT&T DSPs that were designed to manipulate, convert and modify streams of digitized sounds and video signals. A new brand of Macs was briefly available, starting – and ending – with the Centris 660AV and Quadra 840AV. While the 68040 processor worked in its own good time, the DSPs worked in real time. And, of course, real time is what counts.

These AV Macs included an application that turned the computers into answering machines. Reporting on the news then, *Macworld* advised its readers that they might have to buy a new hard drive – as a one-minute message used up as much as 1MB of disk space. At the time, the Quadra's 500MB hard disk was a colossus. Nowadays we worry about iMovies taking up 210MB per minute.

Of course, it's easy to laugh at our excitement all those years ago – we even said the Quadra "sizzled" at 66MHz. Today, when PowerPC G4 speeds are expected to hit 800MHz, that sort of pre-historic performance is kinda cute. The new G4 appears very impressive by the way – it's rumoured to pack 2MB of backside cache and support up to 64GB of main memory thanks to a new 36-bit addressing mode. Whoever is writing this column in 2006 will quote me on that and share the joke with his or her readers. Just 64GB of RAM, ho ho… that wouldn't even run iMovie Streamer 4.1 on my iMac DV SE AV ADSL HTML Plus…

TriMedia, DSPs, Macs as answer phones – all these technologies, whether implemented or not, offer us hope of conquering new frontiers from the comfort of our offices, studies and kids' bedrooms. Without them, our lives would be that little bit less interesting.

While it holds the bigger megahertz numbers, Intel's tech advances are rather dull. The closest Intel ever got co-incided with Apple's planned TriMedia push. MMX was snappy sounding, and promised to make Pentiums unassailable in the sensational sphere of mod multimedia. For all the noise at its launch, MMX died a quick and quiet death.

Apple, meanwhile, has always added some showbiz to its new technologies. Take the TriMedia-based FireDrill – could you resist putting something that sounded that cool in your Mac? FireWire sounds similarly appealing, but, for all its pull, is only taking off today after years of just sounding pretty.

Some amazing new technologies never make it, some have shelf lives shorter than dead lobster, and others become so ubiquitous that they're forgotten faster than Channel 5 soaps. We should never be entirely satisfied with our 56K modems or ISDN lines when ADSL is promised us, never smile widely when we click 12x on our CD-Rs, never agree that a 21-inch monitor is plenty big enough. All our computing wishes will be granted in the fullness of time, via some funny-named tech or other. MW
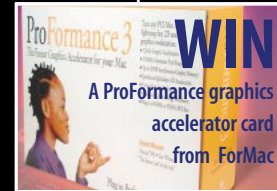

Macworld

The ultimate reference guide and news source for the Macintosh market.

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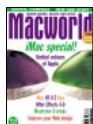
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?   **Subscribe**

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New User **New Group** Open Duplicate Delete

More winners, more great prizes

Well done to the five winners of February's **OKI DP-5000** competition. They are: David Taylor, London; Steven Beswick, Cheshire; Richard Davies, Gwent; and John Ash, East Sussex.

The winners of the **Rainbow 6** Macworld Jackpot competition are: Wyn Parkin, Blackwood, Gwent; Richard Turner, Liverpool, Merseyside; Darren Southworth, West London; Paul Rothe, Kettering, Northamptonshire; and Justin Merry, Redhill, Surrey

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IDG World Leaders in IT Publishing

Join in the debate, and get your queries answered at the Macworld Forum (**www.macworld.co.uk/forum**).

Two CDs this month – and the main one features a 30-day trial of Macromedia FreeHand 9, over 40 other new trials/demos, 200MB of updaters and the latest game demos. Vic Lennard points the way…

Macworld
MAY 2000
Full 30-day trial!
macromedia FreeHand 9
£330 Illustration & design master is your's to try!

GAMES!
PLAY
Goofy Golf
9 fun holes!
Crazy game!

PLAY!
Madden
NFL 2000

PLUS!
FotoStation
Pro Professional
imaging tool
15-day trial version

Meeting Maker 6.0.4 trial version
Plan your life with top calendar & to-do-lists

200MB Mac updaters!

Install Me Before you start working your way through the software on our CD, go to the System Utilities folder and make sure you install the following:

■ **Acrobat Reader+Search 4**
Install this version to be able to read many of the on-screen manuals.

■ **StuffIt Expander and DropStuff**
Versions 5.5, 5.1.2 and 4.5 are included.

■ **System tools**
The CD also carries InternetConfig 2.0.2 and necessary HyperCard items.

Macromedia FreeHand 9 30-day trial

Images © Torbjørn Lagerwall, Marcos Sorenson, Delores Highsmith

Macromedia FreeHand 9 focuses on the needs of today's new breed of designers, offering a unique set of features that bridge the gap for those who need to print graphics and publish them on the Web. With a breadth of new illustration, production and Flash publishing features, FreeHand 9 is the solution for today's professional designers. Here's just some of the key changes…

■ Intuitive design tools **The new perspective grid puts your artwork into perspective in seconds with one-, two- or three-point perspectives. Set up background perspective grid guides with infinitely adjustable vanishing points and horizon lines, allowing for 3D effects in a familiar illustration environment. Live enveloping allows you to warp and distort graphics directly on the page – especially useful for text effects. The Envelope tool streamlines the creation of time-consuming artwork – warp and distort graphics directly on the pasteboard with the new Envelope tool. There's also a new tool precision feature – draw smooth or jagged paths; double-click the FreeHand tool in the Toolbox and set the precision slider to 10 for maximum detail or choose a lower setting for smoother lines.**

■ Design power **FreeHand 9 users can choose between Apple's ColorSync or Kodak's Digital Science for their colour-management system. You can also blend composite paths and groups for more creative effects.**

■ Autotrace **The Trace tool traces any object that can appear on screen in a FreeHand document: TIFF, EPS, text or native graphics. FreeHand 9 now offers the ability to use the CMYK and RGB colourspaces, along with other colour controls. Eliminate the need to manually trace artwork with the new Magic Wand. Click to select continuous areas of colour in bitmaps or vector objects and then convert the selection into a new path or tracing.**

■ Typographic controls **The Text tool now reverts to the Pointer after use in a text block. Double-click a text block, make an edit and go back to work without ever clicking the text or pointer tools. FreeHand streamlines the process of selecting fonts by providing a visual preview of typefaces within key text menus, such as the Text toolbar and the Text inspector. Font menus and documents are automatically updated when fonts are turned on and off at system level or by ATM to eliminate unnecessary relaunches of the application.**

Serious Software

Meeting Maker 6.0.4 trial

Meeting Maker is a network group-scheduling tool that lets users maintain calendars and arrange meetings with other users. The client runs on Windows 95/98, Windows NT, Macintosh, Solaris and HPUX. Install Meeting Maker Admin first, referring to the Admin Guide and Installation PDFs in the Documents folder. Then install one of the user clients (XP or Java) on to each networked machine, referring to the User Guide PDF. Finally, use the Quick Reference PDF to get you started. Most features are functional in this 30-day trial.

FotoStation Pro 4.0 trial

A virtual lightbox, FotoStation Pro lets you easily search thousands of images, write Photoshop-compatible text, acquire new images from different sources, enhance and correct colour, and much more.

Search directly among thousands of images on your local disk, or on a server. Scan images from a scanner with Photoshop-compatible plug-ins – FotoStation automatically adds a predefined text to the images you scan, automatically enhances them with custom or ready-made profiles, and organizes your images in folders on the disk and in virtual projects. Try FotoStation Pro for 30 days.

ACTION Files 1.5.2 trial

ACTION Files is the fastest and easiest way to manage and organize files. It adds menus of commands at the top of every Open and Save window, regular and Navigation Services. These menus contain commands create new folders, make aliases, duplicate files/folders, rename items, or move any item to the Trash. The free trial is fully enabled for 30 days.

Inside Macworld

Our Inside Macworld folder hosts 18 items that tie in with Product News, Reviews, Secrets and the Speech Recognition feature. These include:

FuturePaint 2.0	RealPlayer 7	TextBroom 1.3.1
InfoManager 1.1	16 Sapphire demos	VSE Be Found 1.6
MacPopUp 1.2	Spark 1.5 demo	VSE My Privacy 1.1

Don't miss…

- ■ **Cool Extras!** Cat PPC & Virtual Hamster
  A right pair of virtual pets!
- ■ **CD Catalogue** DiskTracker 2.0.1
- ■ **Mac ISPs** Internet access offers and info from AppleOnline, easyspace & FreeUK.
- ■ **Netscape** Communicator 4.72
- ■ **plus…** Thanks to IconFactory (www.iconfactory.com) for input on CD #1.

Updaters

This month's dedicated updaters folder includes over 200MB of patches to bring many popular applications bang up-to-date, including:

Adaptec SCSI Card 2906
Amapi3D 5.01
CADtools 2.1.2
Carrara 1.0.1
Eudora Pro 4.31
FaxIT+ 2.1
FileMaker Pro 5.0v3
FlightCheck 3.79
Hermstedt ISDN CD 10
IomegaWare 2.2.1
Linotype Saphir HiRes
Logic Platinum 4.1.5
MarkzTools III v7.97
MicroLogic AV 4.1.3
Norton AntiVirus 5 & 6 (03/00)
OmniPage Pro 8.01
PitStop 4.05
Quicken 2000 R3
Retrospect Express 4.2
SoundDiver 2.1.1
ShrinkWrap 3.5.1
Spell Catcher v8.1.1
Virex (03/00)
VST FireWire 2.0.4
VST USB Floppy 2.1.3
WebXPress 4.01

Please note: Claris has replaced the FileMaker Pro 5.0v3 updater since the creation of this CD. Should the installer fail to work on your system, please wait for the new installer next month.

Other demos & trials *include:*

alap ImagePort 1.01
alap Imposer 2.1
BusinessAccounting 5.1.1
Deck 2.63
Effects Pack #2
FaxExpress 5.0.8
FlexWare 9.52
FotoPage Pro 1.1
Ink Xhatch 1.5
LuraWave P'shop plug-in
M 2.5.7
Mac Disk Explorer
NodeSaVR
ProScale 5
QXP Images Catalog 2.2.1
RIMS v3.3
RS Motion Blur AE 1.4
SecurePass 2.01
Tri-BACKUP
Web Album Wizard 1.1
XPressGuides

QuickTime 4

Some programs on the CD require QuickTime 4. This can be found within *Apple Standards* in our April CD's *System Utilities* folder or can be downloaded from Apple's Web site, www.apple.com.

Madden NFL 2000 demo

"The running back takes the hand-off from the quarterback, turns the corner and jets down the sidelines for a touchdown!" At last – American Football on the Mac! You'll love the lightning fast gameplay and the authentic stadium audio as the chants ring round the auditorium. Hear all the action down on the field from the pad-busting hits to the unique player taunts after you've made a big play. Listen to the play-by-play commentary describing the action as it unfolds on the field.

With incredible on-field graphics – realism includes nets behind the goalposts, authentic NFL fields, TV-style first down marker and resolutions of higher than 1024x768 – and four software versions (Glide1/2, OpenGL and standard software rendering), Madden NFL 2000 will leave you speechless.

Only Exhibition Mode is available in this demo version. You can choose to play as either the Atlanta Falcons or the Denver Broncos, and the game begins in the second half, with Denver leading Atlanta 17-6 and receiving the ball.

King of Dragon Pass demo

King of Dragon Pass is the saga of colonizing a magical land. You control the future of a ragged clan that has decided to settle in the empty land of Dragon Pass. Your decisions determine whether they prosper over the course of a century, and whether they will be remembered forever as a great clan.

Of course, yours isn't the only clan that has emigrated to Dragon Pass. You have to co-operate and compete with other clans of your own people, as well as folk you know nothing about. Each has their own personality. Set in the magical world of Glorantha, your goal is to become King of Dragon Pass, uniting all these people through diplomacy, magic, and battle. The objective for a shorter game is to forge a tribe and remain king for ten years.
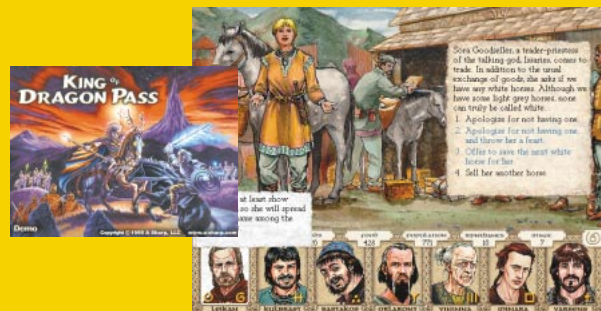
Games World

George

For this month's Top 30 Shareware games, you'll have to look in the Games folder on our second CD – but don't miss the three other demos here.

Identify, dodge and destroy the enemy in Starship which features over 40 levels of game play plus a level editor. Each level is filled with fast scrolling, action-packed adventure.

Deathground is a quick and dirty strategy game that will challenge your mind, satisfy your bloodlust and be finished in time for dinner! You control 'wiseguys', who are based in 'hoods'. The more hoods you have at the start of your turn, the more guys you get. Play with up to seven players; to win, get rid of the other guys.

If you're into adventure games, check out George. This demo version is functional – but you can't use any items, and without a sword you won't live long!

There are a number of utilities, including new scenarios for Avara and F-A-18 Hornet Korea, and a number of updaters, including Championship Manager 99/00 v3.71, Descent 3 Update 1.3.2, Nanosaur 1.2 and Sid Meier's Alpha Centauri 1.41.

Macworld CD catalogue

Courtesy of Mark Pirri's superb DiskTracker program, Macworld brings you a searchable catalogue of all our CDs from 1997 to 2000 – almost 159,000 files! This will grow month by month to allow you to find any file you want, without wearing out your CD-ROM drive. The latest version of DiskTracker (2.0.1) is also included – don't forget to register if you find our library useful.

Macworld

Shareware bonanza! This month's second CD contains 350 of the best shareware around, divided up into 24 easy-to-handle categories and including over 600 superb icons. So, what are you waiting for? Start exploring!

Macworld
MAY 2000
CD2
Top shareware!
+ 600 Mac icons
350 programs, utilities & games

Down to business

Business: 15 applications including Finance 3.2 ExpertConsultant 1.3.9, and Mini-Balancer.
Databasing: Eight items including MacDICT 1.3.6 and MoviePhile 3.0.2.
Palm Pilot: Documents To Go & HotTime 1.3.
Comms: 50 utilities including Analog 4.0.3, BBprofiler, iSynch 1.3.1, Email Merge 1.8.5, PageSucker Mac 2.2.1, ShockBox 1.4 and ViaHTTP 1.7.5.
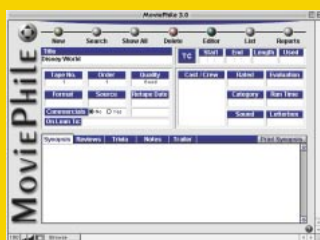
Picture this

Graphics: 14 picture creators including Buttons 1.1, Etchelon Tracer 3.6.2 and Rainbow Painter 1.8.0.
Video: Five movie makers including BTV 3.2.6 and Oculus 2.5.7.
User Interface: 33 enhancers including ABF Rename 2.8, Program Switcher and SwitchRes 2.3.3.
DTP: Five page improvers including QXP Images Catalog 2.2 and Starburst XTension.
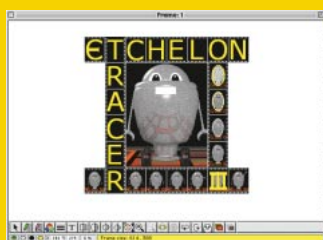
Fun & games

Games: 30 top timewasters including Blazer, Classic Cribbage 1.4.2, Fuffy 1.1, GridZone 2.21 and Skittles 2.0.2.
Icons & Utilities: Four utilities and over 600 icons!
Screensavers: Four anti-burners including BlackWatch 1.5.2 and NOVA 3.2.1.
Sound & Music: 25 tune creators including Amadeus II 2.2, Audion 1.5 and Sound Studio 1.1.5.

Rank & file

Disk & File: 25 useful utilities including File Buddy 5.3.5, OpenUsing CMM 1.5.3 and Startup Doubler 2.5.3.
Data & Time: 30 time savers including Calendar 2000, CDFinder 2.7.1, and SwitchBack 3.0.1.
Conversion: Four file changers including MacZip 1.04 crypt.
Network: MacPopUp 1.0.1 and NWClient Auto Logout 1.0.2.
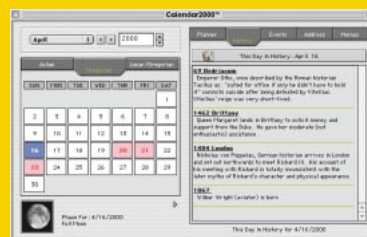
The write stuff

Text Processing: Seven programs including ClipPad1.6.1 and textSOAP 2.6.
Printing: Four items including PrintToPDF 1.4.
Fonts: Six letter creators including FontBuddy 1.9 and Pinyin Font Converter.
Info: Ten of the latest info files including 1984 issue 22, AppleWizards Feb 00, ATPM 6.03 and MyMac 59.

Testing time

Hardware: TattleTech 2.81 and USB Overdrive 1.3.
For Developers: 19 programming tools including ObjectPlant and Valentina.
Maths & Science: 18 apps including Orrery 1.2, MoonMenu 1.0.3, Periodic Table 2.0 and StarGazer's Delight 4.5.1.
Education: Eight teaching tools including English-Spanish Dictionary 1.0 and The WordsCrosser.

Pensez différemment
Apple thinks Europe

At the same time that this year's UK Apple Expo should be taking place, details of its pan-European replacement – Apple expo Europe in Paris – are beginning to emerge. The event will almost certainly be opened by Apple CEO Steve Jobs, who is likely to preview new Apple products at the show. Major third-party companies are also expected to announce new products – Microsoft could use the show to launch an OS X version of its Office 2000 suite of business applications.

Apple expo Europe takes place on September 13-17, 2000. The keynote speech will be held at the Palais De Congres (pictured right) on the first morning of the show. A "very special" keynote speaker is promised – but show organizers are wisely refusing to confirm a definite Steve Jobs appearance.

Jobs had been scheduled to appear at the chaotically cancelled London show (March 30-April 1, 2000; see News, December 1999), but pulled out due to his commitment to speak at the Los Angeles-based Internet World four days later. He has now cancelled his appearance at that show as well (see below).

Due to the total absence of a UK Mac show, organizers expect UK user attendance to be significantly lower at the Paris expo than it would have been at a London show. In a bid to entice UK attendees, Apple is reportedly researching cheap travel deals with agents in a number of countries.

No details were available at the time of going to press.

The Expo, open each day between 10am and 7pm, will be held in Hall Four of Paris Expo, a larger and more modern hall in the same complex as last year's event. Show organizers insist that English will be the principal language of the show.

The event will be split up into themed areas – Consumer, Business and Creation. Exhibitors are being encouraged to create multi-lingual teams for the international attendees.

The Business zone will be the home of e-commerce, small business and health exhibitors. *Macworld* has discovered that Microsoft is planning a "very large" presence at the show, indicating a possible launch of Office9 (the code-name for the update to Office 98 for Mac) – either in Paris, or earlier at Macworld Expo in July. Irving Kwong, product manager of Microsoft's Macintosh Business Unit, told *Macworld*: "We've been working hard on Office9 Macintosh Edition since the release of Office 98 in March 1998."

Creation will be the publishing, digital video and digital photography zone, with a strong showing from Quark expected, particularly in light of that company's current rolling '100 cities' tour. By the company's own product-shipping forecast, QuarkXPress 5.0 could be ready by mid-September.

The Consumer area will be for games, music, education and the Internet. Conferences and workshops are also being arranged. These are set to follow a similar strategic split, though final conference details remain to be worked out. Workshops will be multi-lingual.

Mainland mission
The cancellation of the UK's Apple Expo raised howls of protest from *Macworld* readers and UK-based exhibitors. Apple failed to appear in 1998 after a spat with the show organizers. It organized its own show for 1999, and then pulled out in favour of a "bigger and better" expo set for this March. Apple then cancelled this event at the end of October.

Apple expo Paris 1999 attracted a record-breaking number of visitors (over 100,000), but only five per cent of these came from outside France.

In order to attract more Europeans, the event has been renamed Apple expo Europe. Apple and show organizer Reed Exhibition Companies are "committed to making this a special event for the company's growing number of European Macintosh users", according to Reed's Christophe Conte.

Conte claims that the exhibitors list promises a veritable "who's who" of the Mac industry. Expect to see Adobe, Quark, Microsoft, 3Com, Canon, FileMaker, Sony, and many more companies at Apple expo Europe. The Apple expo Europe Web site goes live in mid-April. Pre-register before the end of August for free admission to the event. Non-pre-registered attendees will have to pay 60FF, about £6, on the door. **Jonny Evans** www.apple.com/euro ᴹᵂ

Microsoft 'harmed consumers'

Microsoft faces being broken-up, following the ruling in the Microsoft antitrust trial that it "harmed customers". Judge Thomas Penfield Jackson declared Microsoft had violated antitrust laws, maintaining monopoly power in the operating system software market by "anti-competitive" means. He ruled that Microsoft attempted to monopolize the Web browser market and that tying its Internet Explorer browser to the Windows operating system was illegal.

The finding follows the collapse of several months of settlement talks between Microsoft and its prosecutors and opens the way for the next stage – the determination of "remedies". These could involve the break-up of Microsoft.

"No company, no matter how powerful, can refuse to play by the rules," said Joel Klein, the assistant US attorney general, who oversaw the case. "The department is committed to finding a remedy that protects consumers, innovation and competition."

Investors responded by dumping Microsoft stock, which lost 15 points on the day of judgement. Other IT stocks also suffered, as investors faced a crisis of confidence regarding IT and Internet stocks. Nasdaq lost 349 points on the day.

Microsoft will appeal the ruling. Its chairman Bill Gates said: "While we did everything we could to settle the case, we believe we have a strong case on appeal." But New York attorney-general Eliot Spitzer was not optimistic, saying: "The judge has put Microsoft in a bind. They are left with only a remote chance at appeal."

Jackson also found that Microsoft bound Internet Explorer to Windows "with contractual and, later, technological shackles to ensure the prominent and ultimately permanent presence of Internet Explorer on every Windows user's PC system".

He ruled that this action severely disadvantaged a competitive product – Netscape's Navigator – and disregarded Microsoft's earlier successful appeal over the same issue.
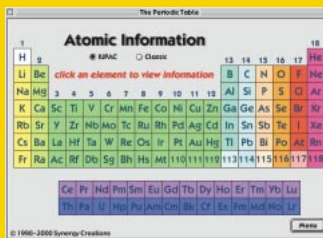
On the appeal, Jackson said: "Read literally, the DC Circuit's opinion appears to immunize any software product-design from antitrust scrutiny, irrespective of its effect upon competition, if the software developer can postulate any 'plausible claim' of advantage to its arrangement of code. This undemanding test appears to this Court to be inconsistent with the pertinent Supreme Court precedents."

Visit Macworld Daily News at www.macworld.co.uk for updates of this story and other hot news. **Jonny Evans and Elizabeth Wasserman**
■ For a review of Internet Explorer 5, see page 46.

Jobs quits Internet World for OS X-based WWDC

At the eleventh hour in any time zone, Steve Jobs pulled out of April's Internet World show. The Apple CEO was set to make the keynote address at the LA-based event, but withdrew – leaving the organizers with only weeks to find a replacement. After days of panic, the Internet World organizers found Steve Case, CEO of AOL, who agreed to open the exhibition in Jobs' place – previewed the new Netscape 6 Web browser at the event.

Jobs originally withdrew from London's Apple Expo on the grounds that he intended delivering the keynote at Internet World. Apple Expo floundered, and was cancelled despite an indignant response from Apple's loyal UK user base (see story above). Jobs will instead be delivering the Keynote speech at Apple's Worldwide Developers Conference, May 15-19, in California.

"This conference will be the most important event of the year for Mac OS X developers and marketers. We're planning for the biggest and best developer conference in Apple's history," said Jobs.

The WWDC (www.apple.com/developer/wwdc2000) will feature technical talks on: Mac OS X (Darwin, Cocoa, Quartz, Carbon and Aqua); Digital Media (QuickTime, OpenGL and Java); Networking and Security (IPv6 and 802.11); Hardware (iMac, iBook, PowerBook, Power Mac G4 with Velocity Engine, AirPort, USB and FireWire); and Tools (WebObjects, Velocity Engine performance and optimization).

Aqua rule book
Particular stress is also being placed on user experience. This is particularly apposite as Mac OS X is set for release in the near future. Apple promises that developers will get the information needed to learn how to take advantage of Aqua.

Due to be presented at the event are Aqua's Human Interface Guidelines. It is at this conference that the look-&-feel of all future OS X-compatible Mac applications will be born. One of the Mac's greatest strengths is its human-interface guidelines – integrating all Mac apps via common rules and visual elements; for example, Open and Save dialogue should appear almost identical in all Mac programs. This helps users learn new programs more easily than if Adobe, Macromedia and Microsoft, say, designed their applications' standard elements differently. The arrival of Aqua (see Macworld, March and April 2000) means developers will ave to redesign their applications to take heed of the new guidelines. **Jim Dalrymple**

The rise and fall of Apple's Mac sales

Apple sales continue to rise, according to research firm IDC. Analysts have exclusively revealed sales figures for Apple's market share performance in 1999 that show an increase of nearly a quarter. But Apple denies IDC reports that its portable sales have dipped significantly in the UK.

In the PC market as a whole, the figures were upbeat. Apple showed a unit growth of 24.8 per cent in the Europe, Middle East and Africa market. Apple shipped 629,000 units in 1998, and 863,000 in 1999. Market share rose to 2. 6 per cent in 1999, compared to 2.4 per cent in 1998.

The company's share of the UK portable computer market, however, dipped from 3.2 per cent in 1998 to 2.6 per cent in 1999 – placing Apple as only the eighth highest selling supplier of portable computers in the UK, behind Toshiba, Dell, Compaq, IBM, Hewlett-Packard, Sony and Acer respectively.

While Apple US boasted its number one position in the education sector, statistics for portables in the UK education sector told a more subdued tale. Apple came in at number seven with 2.2 per cent – a fall from 3.6 per cent in 1998. Research Machines held on to its number one position. Notably, all the top vendors lost market share to Toshiba and Sony, which snatched 11.7 per cent each.

IDC analyst Andy Brown explained to *Macworld* that Apple was up against strong local competition in the UK in 1999, with niche players like Research Machines dominating the education sector.

The numbers also reflect the fact that the consumer iBook was not launched in the UK until late October 1999, with the company showing a disappointing third quarter as a whole.

Apple strongly refutes the claim that it has lost market share in the portable market. Apple UK's managing director Brendan O'Sullivan told *Macworld*: "Apple does not reveal the actual unit numbers, but, as we recently showed in our press day about mobile computing solutions, what we're doing flies in the face of the idea that we are losing market share."

iBook influence

"We launched the iBook in the final quarter," he continued, "and we showed an increase of 400 per cent on the previous year's quarter. We sold more portable Macs in that quarter than in the entire year previously."

O'Sullivan suggested that the way the figures are collected is misleading, as Apple sales in the education market are direct sales only. "If you were to ask resellers for numbers, they would say zero."

He went on to further rubbish the portable plunge, claiming that the company is on target for a 260 per cent increase for portables sold this quarter (January to March) over the same quarter last year. **MW**

Louise Banbury

Horror story

Horror writer Stephen King's decision to publish his next novel as an eBook started a saga of epic proportions in the Macintosh world. Thank the devil, it has a happy ending. The horror story *Riding the Bullet* was made available online only as "an experiment" – an idea that came from the author himself. Publisher Simon & Schuster offered the book through six eBook vendors, but none initially supported Mac downloads.

SoftLock allows customers to read the book in Acrobat Reader, a fact that Adobe trumpeted in a press release: "Simon & Schuster and Stephen King have taken a bold step forward in the future of reading and are leveraging the speed of the Internet to deliver electronic books to consumers."

It was soon noted, though, that SoftLock, like the other vendors, was only supporting Windows PCs – shocking as King is a big Mac fan. Frustrated users emailed King, begging for a solution. King was apparently unaware of the problem, promised that this would never happen again, and said that a solution was on its way. Two weeks later, Adobe and Amazon.com came to the rescue with a Mac solution, using Adobe's PDF Merchant technology.

The publisher says that *Riding the Bullet* will never be available in print, and is talking to other authors about future eBook releases.
Louise Banbury

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iMac crashes out of Wales

Apple has halted the production of iMacs at the LG Electronics plant in South Wales. Production at the Newport plant ceased on February 29 and it's not yet known where the European iMac production will now be based.

LG's general manager Leighton Davies told *Macworld* that job losses were not on the cards: "The 160 employees at the company's Newport factory complex producing this product will be offered redeployment to other jobs within the company," said Davies.

LG Electronics also makes monitors, and assembles computers for other companies like Packard Bell and Gateway. It plans to ramp up production of these lines to compensate for the loss of the Apple business. Apple declined to comment on its production strategy.

Lower costs

According to a report in the Welsh national daily newspaper *The Western Mail*, Apple was pressing LG to lower the cost of production, but LG insisted this would have made its operation unprofitable. Apple moved the iMac production to Wales in April 1999. Previously, it had been assembled at the Apple plant in Cork, Ireland, and the controversial move resulted in 450 job losses.

The return of Mac multiprocessing

Apple has dropped its biggest hint yet that multiprocessing is on its way back to the Mac. This hot move to push PowerPC performance through the roof is more than likely given the modern system architecture of Apple's forthcoming "next-generation" Mac OS X operating system.

During a Q&A session with games developers at March's Game Developers Conference, David Wright, Apple's Mac OS X applications technical manager, told his audience: "We can't make any announcements about unreleased products, but the architecture is there [in Mac OS X and 9] to support multiple processors, and we do encourage you to develop for the multiprocessing features in 9 and X."

Questioners who tried to pry out new info about Mac OS X and Aqua were told that most of their questions would be answered at May's Worldwide Developers Conference.

There hasn't been a multiprocessing (MP) Mac since Apple canned its Mac clone licences. Leading MP cloner DayStar Digital was at the forefront of development, lending its technologies to Apple, which brought out its own dual-processor Power Mac 9600/200MP in 1997. DayStar's most powerful MP system, the Genesis MP 932+, featured four 225MHz PowerPC 604e chips. Both machines were discontinued in August 1997.

The lack of multiprocessing is one of the reasons that heavy-duty 3D graphics work has shifted to Windows workstations, which can accommodate up to six 800MHz Pentium III Xeon chips. Rumours abound that 3D giants, such as Alias Wavefront's Maya and and Discreet's 3D Studio Max may port to the Mac if MP returns. Software must be re-written to take advantage of multiprocessing, so don't expect Photoshop to be six times faster from the off.

OS X's easy upgrade path

During its "Future of Mac OS X" session at the conference, Apple quelled fears that developers have about having to face an entirely new OS.

"We're focusing on ease of transition for developers," said Wright, noting that Apple's goal is to reproduce the easy upgrade path the company had created when it moved to PowerPC processors. The key, Wright said, is the Carbon set of revised Mac OS APIs. Carbon-compliant applications, he said, will take advantage of modern features such as protected memory, pre-emptive multitasking and more.

Wright said Apple's analysis showed most current Mac OS applications, including games, were on average 95 per cent Carbon-compliant: "Most can be revised in a week." As a result, he said, "getting close to Mac OS 9 gets you close to Mac OS X." Wright pointed out that Carbonized applications would also run under Mac OS 8 and 9 via the CarbonLib extension: "One binary will run on both Mac OS 9

and X," Wright said.

During a Q&A session, most questions indicated that some people were still confused about how to develop applications for Mac OS X. Should they make the simple revision to Carbon or work with the unfamiliar but powerful Cocoa environment?

"If your code base is for Mac OS 8 or 9," Wright replied, "use Carbon. If you're starting from scratch, we recommend you work in Cocoa, which we use for key OS X system applications."

Some developers asked whether certain Unix features would be available to them. They were told that features such as network sockets were already in Mac OS X, but a command-line terminal application would not be included in the desktop version.

Others wondered if some of their favourite elements from the existing Mac OS would survive the changeover. "Game Sprockets will be available in Mac OS X," said Wright, but he confirmed that the Mac OS Control Strip will not be supported. "It simply doesn't fit into the OS X user experience," he said.

As for particular extensions, Wright said they'd be examined on a "case-by-case" basis, though those that patched the system were definitely out.

Wright also fielded repeated questions about which legacy Macs would run Mac OS X; attendees said a large number of their customers owned older systems. Wright declined to provide an answer, saying that the company won't know details until after the final product has gone through testing. Compatibility with pre-G3 Power Macs would be hit-and-miss, he suggested.   MW

Daniel Drew Turner & Simon Jary

Mac OS 9.0.4 update fixes bugs, updates FireWire & USB

Apple has released a Mac OS 9.04 updater (code-named Minuet), which contains various bug fixes and tweaks. It is already shipping with the Mac OS in the latest hardware from Apple.

OS 9.0.4 includes the latest versions of Apple's FireWire and USB extensions, Sound Manager fixes, and enhancements to the Mac OS ROM and PowerPC Enabler files, as well as the Script Editor and ATI drives. Also included are fixes for the Energy saver, Audio updates, HD spin down and Open GL.

£99 megapixel camera 'this year'

Budget-minded consumers are likely to see an under-£100 megapixel digital camera by the end of 2000, and similarly priced two-megapixel models a year later, says digital camera analyst Steve Hoffenberg. Hoffenberg heads the Digital Photography Systems Advisory Service for Lyra Research, a consulting firm that specializes in digital-imaging technologies.

The discount cameras will be bare-bones models without optical zoom functions or other amenities, says Hoffenberg. Meanwhile, he predicted that higher-priced consumer digital cameras will hit four to six megapixels next year, but will then level off.

Competitive market

Manufacturers in the competitive digital camera market have been racing for several years to offer ever-increasing levels of resolution. The first popular megapixel cameras were introduced in 1998, followed in 1999 by two-megapixel models, and this year by three-megapixel cameras, most priced at £600 or less.

The obvious question is whether the average consumer or photo hobbyist needs all this resolution, especially considering that many digital images are posted on the Web, where a half-megapixel image takes up plenty of screen space. With a three- or four-megapixel camera, users can produce a "dynamite 8-x-10-inch print," Hoffenberg says.

This won't keep some vendors from pushing the envelope further. It's technologically feasible to develop a 10-megapixel camera, Hoffenberg says, but there would be many trade-offs, beginning with the huge file sizes such a camera would produce.

Rick Oldano, a photographer who covers digital cameras for a variety of trade publications, agrees that practical considerations would limit the usefulness of a high-resolution camera. "You would need hundreds of megabytes of storage," he says.

So far, manufacturers have achieved higher resolutions largely by using charge-coupled devices (CCDs) that squeeze increasing numbers of sensors into the same amount of space. The problem, Hoffenberg says, is that CCDs packed with so many tiny sensors tend to sacrifice dynamic range, a measure of the camera's ability to capture the lightest and darkest regions in a scene. As cameras reach three megapixels or more, manufacturers will have to use larger, more-costly CCDs.

The race for higher resolution has inspired some manufacturers to introduce variations on the CCD. Fuji plans to release two cameras this spring that use the company's new Super CCD technology: the four-megapixel FinePix 4700

Zoom and the six-megapixel FinePix S1 (see January 2000). Fuji claims that the technology improves dynamic range and reduces noise.

Neither Oldano nor Hoffenberg were impressed by early image samples shown by Fuji at the recent Photo Marketing Association trade show in Las Vegas. Both say the images looked soft, as if shot through a diffusion filter. However, Hoffenberg believes Fuji will iron out the problems when the cameras are released.

Scitex – manufacturer of high-end Leaf studio cameras – has developed a technology called C-MOST, based on complementary metal-oxide semiconductor (CMOS) technology. Scitex says the 6.6-megapixel C-MOST sensor measures a full 35mm – providing a good match for 35mm camera bodies – and features sensitivity and noise levels comparable to a CCD.

Hoffenberg doesn't expect to see FireWire – the high-speed interface that's become popular in digital-video camcorders – in digital still cameras. "It would be overkill," he says, noting that USB is sufficiently fast for transferring still images, even at three megapixels or more.

Pixels not perfect yet

The technology may be moving fast, but Oldano notes that digital cameras still have a long way to go before they match the value of their film-based counterparts. "The premium you're paying for a digital camera is really tremendous just to get close to the quality of a 35mm point-and-shoot camera," he said, noting that £200 will buy you a 35mm camera that easily matches the quality of a £800 digital model.
Stephan Beale

Snap happy
Microtek's basic but bargain digital camera cost just £50 when it was shown at January's Macworld Expo. You can forget about luxuries like zooms and LED screens, but people looking for quick pics of family and friends to slap on their Web site will love this cheap snapper when it ships later this year.
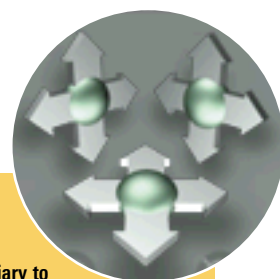
Adobe's MetaCreations deal

Adobe has struck a deal with MetaCreations' Metastream subsidiary to license Metastream technology in exchange for one of MetaCreations' 3D programs. Adobe will support the Metastream technology (MTS) across its product line, and in exchange will acquire Canoma, a software package that creates 3D models from photographs and outputs them to the Web.

MetaCreations made a shock announcement at the end of last year that it was divesting its award-winning graphics programs so that it could concentrate on "e-commerce visualization solutions".

The fate of MetaCreations' other applications was still undecided at the time of going to press. The company had said that it hoped an announcement would be made by the end of the first quarter of 2000 regarding a buyer for Painter, Poser, Bryce, Carrara and other MetaCreations' programs. However, no mention of the graphics products – apart from Canoma - was made during this announcement.

Metastream also unveiled MTS 3 – the next generation of its 3D-streaming system for e-commerce. The new version has better imagery (colour accuracy, lighting, shadows and reflections), and integration with other media types such as vector graphics and iPPIX panoramas. The company announced partnerships with other big players: Nike, iPIX and AOL have now adopted the technology.

MetaCreations has issued free maintenance updates for Carrara, Poser and Canoma, pending the sale of these programs.
Louise Banbury

Adobe responds to v.1.5 InDignation

Adobe released its first InDesign upgrade, version 1.5, to a ripple of applause for its new features and a loud hissing for having to pay for it. The storm of protests that Adobe should have fixed InDesign's bugs for free before charging £59 for an upgrade forced the company into a quick but not total upgrade-policy U-turn.

Adobe has now confirmed that all worldwide registered customers who bought its next-generation page-layout tool before January 1, 2000 for the full £399 price will receive the upgrade for CD shipping costs only. All customers who bought the original product up to one month before the upgrade was announced will also receive a complimentary upgrade. Those customers who bought InDesign for its £199 promotional price will have to fork out an expected £20 to upgrade to the new version.

The about-face was revealed by company president Chuck Geschke, after a deluge of critical emails and phone calls and a flurry of negative press reactions attacked the company's policy of charging to upgrade a product itself only six months old.

User outrage
Philip Trauring's reaction was typical: "As a long-time Adobe user and early InDesign adopter, I was outraged to see Adobe charging for the upgrade. It's not like v1.0 was bug-free and stable. I, along with many others, took some things on faith – like the fact that Adobe would fix the problems in the first version of InDesign. It's charging us for being early adopters."

John Cunningham, Adobe's European business manager, defended Adobe's position: "A lot of people see v.1.5 as an update, rather than a major upgrade. But v.1.5 offers a lot for the money." However, Adobe's quick decision to revise its upgrade pricing structure has served to strengthen ties with its customers.

InDesign 1.5 offers 70 new features and tighter integration with the rest of Adobe's programs. Tools, commands, palettes and keyboard shortcuts are now held in common between it, Illustrator and Photoshop.
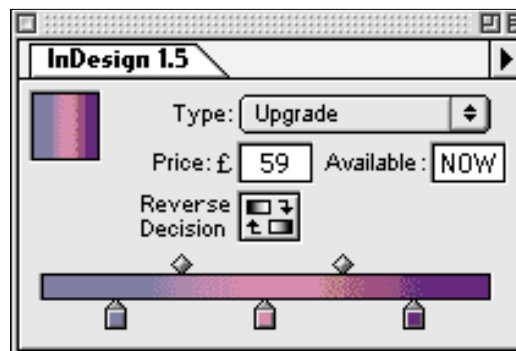
The publishing application preserves Alpha channel information when native Photoshop files are imported, facilitating text run-arounds and image masks. Adobe's PressReady, InProduction and InCopy are also more tightly integrated with the main application.

The eyedropper tool is now capable of picking up both text and graphics. Other key features in the upgrade include the software's ability to link text on a path. Built-in trapping, enhanced colour controls and printer and PDF export styles are also an asset to InDesign's users. Vertical justification has also been added.

Bruce Chizen, executive vice president of world-wide products and marketing, praised the speed at which Adobe was able to bring the upgrade to market: "With the flexible architecture at the core of InDesign, we were able to develop and deliver these features within a span of only six months".

This modular, manageable architecture is a boon for third-party plug-in developers too, with developers Pageflex (Mpower and Persona) and PowrTools (PowrTable) swiftly making the adjustments necessary to support InDesign 1.5.

Adobe InDesign 1.5 retails at £439 (ex. VAT), and requires Mac OS 8.5 or better.   *MW*
Jonny Evans

Flash 'kills the video star'

Rob Burgess, Macromedia CEO's keynote speech at Flashforward2000, San Francisco, began with a video called "Internet Killed the Video Star", trumpeting an installed base of 222 million Flash users.

He announced the release of the Flash Player and file-format software developers kits (SDKs), previewed Flash version 5 (which worked faultlessly, though no release date is set) and described the "new frontier" for Flash as a ubiquitous multimedia technology, aimed at set-top boxes, handhelds and mobile phones.

The file format SDKs and Flash Player SDKs are available now, file-format SDKs as a download (www.macromedia.com), **though Flash Player is** only available to approved developers. Kevin Lynch, Macromedia's chief technology officer said: "These will let you author Flash animations in many products."

Flash 5 will have a revamped interface, including floating, tabbed palettes and new "widget-builders" using Flash-based interfaces within the application itself. Macromedia claims 90 per cent of current browsers include the Flash plug-in.

Frank Casanova II, Apple's director of QuickTime marketing, talked about QuickTime. He celebrated QuickTime-Flash integration and showed examples from Apple's QTTV Web site with Flash animations as navigation tools for streaming QuickTime movies. He described Apple's free, open-source, cross-platform QuickTime Streaming Server as "the only Internet-streaming format that's open", in a thinly-disguised dig at Real Networks.
Daniel Drew Turner   *MW*

New space-combat game for Mac
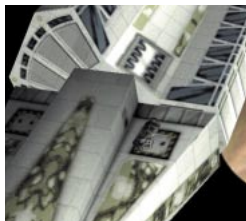
Vicarious Visions is set to release Terminus, its compelling space-combat sim and the first cross-platform game ever developed on Linux. A three-CD set, the game is compatible with and interoperable between PCs, Linux and Macs.

Terminus offers single and multi-player modes, but its real strength is over the Internet, where the game offers a persistent universe over an entire Solar System online, with no subscription fees. Servers can cater for 32 players in Free (Internet) Mode; Campaign (Network) Mode can support up to eight simultaneous players. Not only does Terminus present an online world that never sleeps, but prices and supplies fluctuate, according to game play. One player's actions can affect another player's experience, even in different parts of the Terminus universe.

A1 AI

Terminus never stops moving, acting independently of players' actions. With cunning Artificial Intelligence (AI), the characters you meet can be human or computer-generated. Computer-controlled characters can even express complex human emotions. Events on and around the game's 18 fully equipped space stations continue regardless of player participation, and a real-time economy adds complexity to events as the game's drama plays itself out.

Players choose sides and roles – United Earth League fighter pilots square off against Mars Consortium fighters, while merchants and mercenaries battle against pirates – and each other.

Players can talk to each other, as if by radio, through the Terminus game server – forming and breaking alliances for the greater glory of the League, or for common profit. Guha Bala, president of Vicarious, told *Macworld*: "You get to experience a slice of future life, with a beginning, middle and end."

Pre-release beta copies of the game have received ecstatic reviews from a variety of game and PC mags. David Laprad, writing for The Adrenaline Vault (**www.avault.com**), claimed it "has captivated me in a way no other title has".

The game is a number-cruncher, and is set to take a lot of computing power to run. It's made up of over 100,000 lines of code. Basic specifications, publisher and price remain unannounced, but the game is set for immediate release.
Jonny Evans

3D monster roars at Game Developers Conference

ATI Technologies is poised to "revolutionize" 3D gaming with its next-generation graphics chip, which was previewed at the Game Developers Conference.

The company, which makes the Rage 128 graphics controller built in to current Macs, gave a sneak peak at two major components of the new chip. The key components - the Charisma Engine and Pixel Tapestry Architecture – will be introduced in upcoming products this summer, and are designed to "revolutionize the 3D graphics power" of PCs, said ATI.

The Charisma Engine, which ATI boasts is the world's fastest geometry processing unit, incorporates advanced game character acceleration for 3D skinning and key-frame character animation – generating life-like expressions and more fluid movement.

The Pixel Tapestry Architecture features a "GigaTexel" rendering engine, for faster and more realistic generation of textures and surfaces, such as metals, liquids and wood. Support for deep multitexturing and 3D effects means that true 3D textures can be applied to objects, and a new feature for accelerating environment mapping lets textures reflect the surrounding scene. While some of these features are already supported in OpenGL 1.2 (the latest version of the 3D graphics API incorporated into the Mac OS), other functions can be implemented as extensions to OpenGL.

ATI didn't comment on whether Apple plans to use the new chips.

The conference is not a traditional showcase for Apple, but Apple still had a decent presence. Kathy Tafel, marketing manager for consumer products, commented on Apple's new strength in the consumer and games market: "We're seeing the results of the hard work that the Apple developer relations group has done over the last two years, especially since we adopted OpenGL and put ATI Rage 128 3D graphics cards in our machines."

Some third-party developers at the PC-centric event showed games for the Mac. A Sharp won an Independent Developer award for Best Visual Art for its fantasy role-playing Mac game King of Dragon Pass.

GraphSim showed off the Mac port of Descent 3 and a playable version of role-playing game Baldur's Gate (left). Blizzard Entertainment gave the Mac version of Diablo II (above) a public airing. The timing of the game's release has not yet been finalized, but some game experts are expecting a simultaneous Mac and PC release.
Louise Banbury

Free Net access sweeps Europe

Unmetered calls 'doubles time spent online'

Free, unmetered Internet access is here to stay, and will soon spread across Europe, according to James Eibisch, a research analyst for International Data Corporation (IDC). With competition for new users hotter than a Lucas ArtsWeb server, we can look forward to ever-cheaper Web access. And Apple can look for increased iMac sales.

Matt Peacock, AOL Europe's director of corporate communications, agrees: "Metered rates are an old and unjustified business model. The telcos are holding back the e-commerce revolution in Europe."

While Internet use rocketed in the US, where local calls are free, one-time European state-owned telecommunications monopolies such as British Telecom and Deutsche Telekom have dragged their feet, clinging onto the huge profits made from metered calls.

"Voice is more profitable than data, the telcos want high profits. And laws in some European countries do not let companies discriminate between voice and data," Eibisch said.

Industry analysts believe that major telecoms companies will be forced to change their ways, faced by increased competition and changing needs.

The cracks first appeared last year, when France Telecom launched its "all-in-one" Net access service payment plan, Integrale Wanadoo, offering free time online for a fixed fee. Deutsche Telekom's chairman

and CEO Ron Sommer said that his company too would offer flat fee schemes in the future.

The biggest battle over flat-rate Internet access has been in the UK, where AOL Europe worked with groups like The Campaign for Unmetered Telecommunications to pressurize BT into offering flat-rate Internet access fees.

"When we first began campaigning for it, most people didn't know what it was. BT claimed people didn't want it," said Peacock, adding: "Unmetered is now a mainstream concept, and people are screaming for it".

AOL's flat-rate experiments yielded dramatic results: "In the five months since we offered the plan, all of our members have doubled their online time from 15 to 30 minutes per day," Peacock said.

In November, when CallNet first offered flat-rate Internet fees, the response was overwhelming: "It was so popular, more than 200,000 people wanted to join us, which would have over-stretched our infrastructure," said CallNet's CEO, Paul Goodman-Simpson.

"Since then we have seen average online time per user increase from 17 to 35 minutes per day," Goodman-Simpson continued. BT announced its own mass-market flat-rate Net access plan, SurfTime – but with a catch. It said its proposals rested on achieving regulatory approval from the UK's Office of Telecommunications (Oftel). The SurfTime proposal

hung in limbo until March, when NTL and AltaVista, renewed the attack on metered pricing with free, unmetered Internet access announcements.

AltaVista, offers users flat-rate monthly Internet access, including toll-free calls, for a fee of between £30-50, and an annual charge of between £10-20.

NTL offers free Internet access with free calls to connect to the Internet, when customers sign up for its cable telephony service and spend a minimum £10 per month on voice calls.

Since then, companies like Freeserve and Telewest have also announced plans to offer free Internet access, while others – such as Excite Europe – are seriously considering the idea.

Travis Mooney of Mac-specialist ISP Apple Online said the moves could relate "to forthcoming government regulations that classify ISPs as telecoms providers. Small ISPs are being forced to buy expensive equipment to conform with these regulatory changes."

Freeserve spokesman Steven Pang says: "What happens in the UK is indicative of what will happen in the rest of Europe. The UK is the gateway to Europe, as the Americans see it," Pang said.

AOL accuses BT of delaying the e-commerce explosion in Europe: "BT's foot-dragging affects the European market. The UK has the opportunity to lead Europe on e-commerce, but BT won't give unmetered access. Where the UK goes, Europe will follow."

BT's hands 'tied'

BT claims it would like to offer unmetered Internet access, but says its hands are tied by government regulations. Asked how he felt about being beaten to it by two US companies, BT's chairman Sir Iain Vallance blamed Oftel: "We have to offer a wholesale product to the customer. Because of restrictions and outside pressures, we will not be able to move as quickly as we'd like."

The European Union has met to declare its plans for an EU-wide reduction in local phone costs. The industry believes that flat-rate, unmetered Net access fees will be firmly established in the UK, and to a lesser extent the rest of Europe by the end of this year.

Peacock of AOL sums up, saying: "The problem being identified by Europe is welcome, but Internet and EU time are different. Consumers want unmetered access in Internet time, and the telcos must bear this in mind." On unmetered access, he said: "Consumers don't want catches, they don't want the complication of switching to a line-box… they want a robust, cost-effective service. I am concerned that some unmetered service providers will find they have unsustainable business models."

"There is one company with the power to change it all, to hasten the take-up of the Internet in Europe – BT. BT carries 85 per cent of all telecoms traffic in this country, yet its SurfTime package costs over twice as much as similar US deals. With the local loop still unbundled there is no company in the UK that can compete on equal terms."

"AOL is committed to giving unmetered access to its customers, but won't do so until we can develop a sustainable business model. We do not want to let our customers down."

Laura Rohde & Jonny Evans

DAVID ANGEL

Macworld online   news

Competition explodes as ISPs rush to offer new deals

AltaVista   www.altavista.co.uk
Plans to offer unmetered access to the Net. The service is expected to cost £30-50 to join plus a £10-20 per year renewal fee. The company promises no minimum/maximum online time, no call charges and no obligation to use other services. Not to be launched till later this year. The service will only be available to limited numbers of people initially.

NTL   www.ntl.co.uk
It's unmetered Internet access package is available now for both NTL and BT customers nationwide. In NTL regions you acquire free Internet access 24 hours a day, but must sign up as an NTL telephony customer. Outside those areas users must purchase a telephone adaptor (£10) and must spend a minimum £10 per month on non-net Calls. 0800 952 4343

Telewest   www.telewest.co.uk
The second-biggest cable operator in the UK offers SurfUnlimited, Net access for just £10 per month, though customers must spend a minimum of £10 per month on phone calls to qualify. The deal is only available for those in Telewest or Cable London served areas. You need a Telewest phone, and must pay £9 per month line rental. 0800 068 4242

AOL   www.aol.co.uk
In September 1999, AOL cut the cost of daytime, dial-up Internet access to 1p a minute for its members. For this it charges a £9.99-per-month subscription. Currently offering a one month free trial, including ten free hours of Net calls.

LineOne   www.lineone.co.uk
Users must spend £20 on a line box to dial its telecomms provider. Users then get full 24-hour Internet access, but need spend only £5 per month on calls. 0906 3020100

BTInternet   www.btinternet.co.uk
Unlimited unmetered access to the Internet at weekends and weekday evenings for £9.99 using BT Internet as your ISP. Currently running a 'Net a Million'competition as a promotion for its service. 0800 800 001

GreatXscape   www.greatxscape.co.uk
Limited toll-free access (20 hours/month), but users have to switch to TelNet for telephone provision. 0161 972 7216

24-7 Freecall   www.247freecall.co.uk
For £24.70 per month you get all day free Internet access using 24-7 as an ISP, 24-7 also becomes your telephone service provider.

Claranet   www.claranet.co.uk
Offers two tariffs: Oneforall costs £6.99 per month, after which Net calls charged at a penny a minute. Freetimeunlimited offers off-peak access to the Net for £49.99 per month. It's rumoured that the company might be revising its pricing structure soon. 0845 355 1000

CallNet0800   www.callnet0800.co.uk
Totally free, unlimited day or night Internet access from this company, conditional on signing up for its integrated Net access & home phone service. The company claims its voice call rates are 30 per cent below BT's, including calls made to mobiles. £19.99 for a CallNet telecom dialler to route all calls via CallNets network, 0906 944 4040

Freeserve   www.freeserve.co.uk
Two deals available. From June, Freeserve customers will get unlimited evening and weekend calls for £6.99 per month over BT lines. Freeserve is also set to launch an unmetered access deal, through Energis, called Freeserve Time. To qualify, you must get a telephone adaptor – available from high street stores – and spend a minimum £10 per month on voice calls – or a monthly fee of £10. The company is only accepting 10,000 customers for this service each week.

Shares soar, stock-split looms

Apple's Annual Shareholder's meeting takes place on April 20 at the company's headquarters at Cupertino, following the company's quarterly results announcement on April 19. In the prelude to these events, Apple's share value continues its meteoric advance, reaching new heights throughout March, closing at $139.56 on March 27 after achieving a high-point of $144.19 on March 22. Its general upward trend in value reflects the healthiness of the Nasdaq Index across the board, as technology stocks rallied during the month.

Doubling up

Shareholders will be asked to vote on a stock split. Each share held by them becomes two shares, at half the value. The notice of the AGM says the total number of shares will increase from 320 million to 900 million. This reflects the confidence of both company and investors for future prospects, and augurs well for very positive results for the quarter.

The event also marks the departure of Apple board member Edgar J. Woolard. Woolard (aged 66) has sat on the board since 1996, and was the man who rang Steve Jobs' CEO predecessor Gil Amelio to demand his resignation.

Following Woolard's resignation, the number of seats on Apple's board is to be reduced from seven to six. For news from the shareholders' meeting and of Apple's financial results, visit Macworld Online (**www.macworld.co.uk**). **MW**
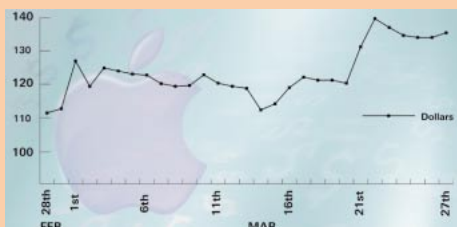
Jonny Evans

PHOTOGRAPH OF APPLE'S CUPERTINO HQ BY STUART WILKES

Printer firms unite vs HP

Xerox has allied with Sharp and Fuji Xerox in a $2 billion team-up that could lead to faster, more affordable ink-jet printers for small-office and home-office (SoHo) users. The companies will each offer a full line of Mac-compatible, low-cost ink-jet printers. Xerox's first new printers will be available in the US in the next few months, according to the company's president and chief executive officer Rich Thoman.

The printers from the three firms will include new technologies that make them "at least 50 per cent faster" than comparable ink-jet systems from Hewlett-Packard (HP) and other Xerox rivals, Thoman claimed.

"Ink-jet has always been a trade-off for the user. You can have colour speed, or colour quality – never both," said Thoman. "But that is about to change."

The market for ink-jet printers could be worth more than $50 billion by 2002, according to Xerox estimates. HP is the recognized leader in the market, and Xerox hopes to steal some of HP's business by banding together with its partners.

The three companies will pump a total of $2 billion into the alliance over the next five years, Thoman said. Xerox will begin launching personal colour ink-jet printers (such as its 1,200-x-1,200dpi DocuPrint C15 pictured below), copiers and multi-function machines over the next few months. Sharp will also offer its brand of ink-jet products. Fuji's Xerox-branded products will be sold in Japan and the Asia-Pacific region. This is Xerox's second move to grab a slice of the printer market since acquiring Tektronix's printing business for $925 million last September.

■ HP and Xerox have ended their patent infringement lawsuits battle. The companies have decided to "avoid the cost, time and distraction of lengthy legal battles", and to "concentrate on competing in the marketplace, rather than the courts". Six outstanding patent-related lawsuits had been filed between May 1998 and June 1999. **MW**

Business briefs

■ Palm has appointed two former Apple executives to top positions in the company. Satjiv Chahil joined Palm as chief marketing officer earlier this month. He was promoted to president of corporate marketing at Apple in 1996 – and was famed for his celebrity contacts and knowing Peter Gabriel. Doug Solomon was at Apple for 15 years and is now Palm's chief strategy officer.

■ Aladdin Systems has bought Trexar Technologies, a developer of Internet information utilities. The merger adds WeatherTracker, MacTuner, and MacHeadlines to Aladdin's existing utility line-up, MacTicker and IntelliNews.

■ ImageX.com is to buy CreativePro.com, parent company of Extensis and Web portal for creative professionals. ImageX.com provides e-commerce solutions for the print industry. In a deal worth $97.1 million, CreativePro.com becomes a wholly owned subsidiary of ImageX.com.

■ Macromedia has formed a venture unit, Macromedia Ventures, to invest in Internet companies. Norm Meyrowitz, president of Macromedia Ventures and former president of Macromedia said: "We're looking for companies with incredibly talented teams, great products, and most importantly, a clearly-defined customer base with a demand for what the company is developing."

■ Iomega is setting-up a separate business unit to market and sell its back-up and storage-management solutions. "Historically Iomega's software development team focused on supporting the hardware team. Its role was to provide the drivers, and the core software that interfaces to the drive," said Germaine Ward, vice president of software solutions at Iomega.

Adobe's Web double

Adobe has driven forward its Web products roll-out with the announcement of **GoLive 5.0** and **Illustrator 9.0** at April's Internet World in Las Vegas.

The new version of the GoLive Web-authoring software has added database and e-commerce features such as Dynamic Link for ASP – an extension that connects to ODBC-compliant databases. It lets designers lay out mock content using a template and to link a Web page to a database with a single mouse click. Writers can add content directly through a Web browser.

GoLive now has the ability to prevent existing source code from being overwritten or modified – if GoLive encounters any foreign or non-standard code, it leaves it alone.

A new interactive Editor for Streaming Media within GoLive 5.0 lets designers drag-&-drop any QuickTime object or Flash file and place it visually in a QuickTime timeline without having to calculate co-ordinate settings.

Support for emerging standards and technologies has been added – Cascading Style Sheets, Accessibility 1.0, WebObjects 4.5 and 5.0, and Scaleable Vector Graphics – as well as support for Flash, QuickTime Streaming and Real Networks G2.

GoLive update online
GoLive is set for a June release, and will be available online, as well as from the usual Adobe resellers – with upgrades from CyberStudio or Adobe GoLive version 4.0 available.

Illustrator 9.0, Adobe's vector-graphics software, has been improved through Web entablement, unlimited transparency support, and productivity enhancement. It is highly compatible with Adobe's other products.

Support is provided for Flash format (SWF) and SVG, meaning smaller file sizes and faster downloading. When exporting in Flash format, there is a choice of exporting to a single SWF file, to export layers to separate frames

within an SWF file, or to export layers to separate SWF files.

Vector-based illustrations can be output in standard Web raster formats (GIF, JPG, PNG) using a new Save to Web window that has a LiveView panel to compare a thumbnail of the original graphic with three optimized versions.

Unlimited transparency controls can now be applied to Web or print graphics, and transparency settings can also be applied to words, characters or paragraphs in a text block. PSD files can be placed into Illustrator and turned into objects or layers without losing layers' transparency and masks. Support for exporting editable text in PSD format means that text can be designed in Illustrator and exported to Photoshop, where it appears on a Photoshop text layer. Other features include improved colour consistency when moving files between Illustrator to Photoshop. Illustrator 9.0 is expected to ship in May 2000, with pricing unconfirmed at press time.
Adobe, 020 8606 4001
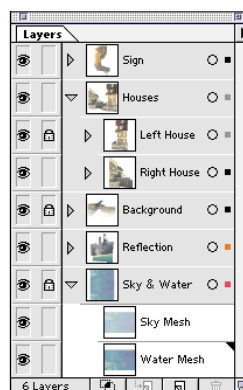
Export quota
Illustrator 9.0 layers can be thumbnailed for each layer, as well as for every object or group.
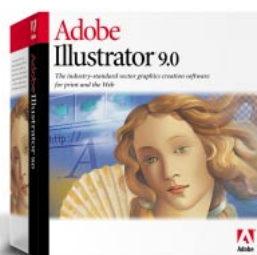
John Foxx has released 3,000 new royalty-free images on CD and online, from www.johnfoxx.com. Categories include backgrounds, animals, medicine, food, travel (above) and computers.
Cadmium, 0800 436 867; Dynamic Graphics, 01376 516 006

Flat-screen Trinitron
CTX has released its new £309 pro-level, flat-screen monitor, the 19-inch PR960F. It features advanced FD Trinitron CRT technology for accurate images and has four down- and one up-stream USB hubs. Its aperture-grille pitch is 0.24mm.
CTX, 01923 810 800

RealPlayer 7 ships
RealNetworks has released RealPlayer 7, its popular software agent for delivering Internet-based media files. New is the Real.com message service, that keeps users posted with news and Web-music and movie trailers. RealPlayer 7 can also be downloaded from RealNetworks at **www.real.com**

USB drive motors in
USB Central has launched the Mac-friendly 34GB, USB Storm Drive. The drive has a seek-time of 8.5ms, gives a 1.2MBps transfer time, spins at 7,200rpm and costs £425. USB Central products are available from **www.usb.central.co.uk**. The company adds new products monthly and gives free delivery to UK customers. Other drives include 13, 16, 20 and 25GB models.
USB Central, 01642 714 130

Better safe than sorry
First Sound and Vision has released CD Shield, a clear protective film that protect CDs from dirt and scratches. They cost £3.99 for five.
First Sound and Vision, 020 7865 3862

TextBroom dusted off
Blueline Studios has released TextBroom 1.3.1, an update of its text-correction shareware. The new version has a number of bug-fixes, drag-&-drop support and speed improvements. It costs $15.
www.blueline-studios.com.

Stylus' in the groove
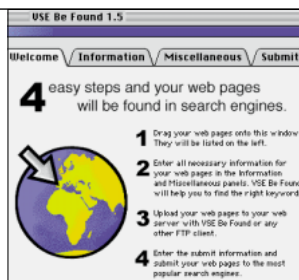
Be Found updated

VSE has released updates of VSE Be Found (1.6) and VSE My Privacy (1.1), both costing $19.95. Be Found submits users' URLs to 178 search engines, analyses pages, manages meta tags and has a built-in FTP client. My Privacy offers strong, 448-bit encryption for users' confidential data. **Voget Selbach Enterprises, www.vse-online.com**

CRT monitor gem

Mitsubishi has launched the 22-inch Diamond Pro 2040u part of its NF (Natural Flat) range. The flagship CRT monitor has a 20-inch diagonal viewing area, and 0.24mm uni-pitch aperture grille. It is designed for professional users, such as reprographic houses. **Mitsubishi, 01707 278 684**

Fusion PC emulator

Fusion PC is a £33 68x0K Mac-emulation package that enables PCs to run non-Power Mac software, allows Internet access and gives full-sound support to games. A PowerPC upgrade is due for release later this year that will allow PPC Mac software to run on a PC. **Blittersoft, 01908 225 454**

FuturePaint touched-up

Statz Software has released FuturePaint 2, its free Photoshop-like paint program. It is memory-friendly and programmed in Statz's FutureBasic programming environment. **Statz Software, www.statzsoftware.com**

Epson has updated and extended its range of consumer printers, introducing improved printing and inks technology. Its 740 Blueberry iMac printer has been updated, redesigned, and relaunched as the Stylus Color 760 Transparent Blue. It comes in transparent blue as standard, with another four flavoured casings offered to match Apple's iMac range. It boasts print speeds of 7ppm mono and 6.8ppm colour, and has a paper capacity of 100 sheets of A4 paper.

Epson also launched an ink-jet printer for digital camera users. The £271 Stylus Photo 875DC is an A4 six-colour ink-jet printer with a PCMCIA card reader that supports CompactFlash, SmartMedia, Memory Stick, and Flash ATA. It offers print speeds up to 10ppm black and 8.8ppm colour, edge-to-edge printing, and Ultra Micro Dot technology.

The company also launched the Stylus Photo 870 (A4) and the Stylus 1270 (A3+). They also offer edge-to-edge printing, using the paper-roll holder – optional in the 1270, standard in the 870, and use new Intellidge Ink Cartridges that contain a light-fast dye formulation. This, in conjunction with Epson's Premium Glossy Photo Paper or Matte Heavyweight Paper, means output remains colour-fast for up to ten years, Epson claims.

The £399 Stylus Photo 1270 features print speeds of 9ppm in black, 8.7ppm in colour, and includes Adobe Photoshop 5.0 LE. The Stylus Photo 870 costs £239, and comes with LivePix 2.1 image-editing software. **Epson, 0800 220 546**

■ For an in-depth assessment of the new Epson printer range, see "Prints Charming", on page 85 of April's *Macworld*.

Pro active
Costing £149, the Stylus Colour 760 has the latest Micro Piezo printhead technology, and a more efficient DC motor, to reduce noise levels.

Digital Origin fires DV rocket

Digital Origin has announced version 2.0 of its digital-video editing software EditDV. Version 2.0 includes third-party plug-in support, export to Web-streaming formats, improved camera compatibility and Macintosh G4 and iMac DV compatibility.

It also has improved time-line editing and more tools for manipulating clips, such as roll and ripple editing from the sequencer.

Direct support for QuickTime Effects plug-in architecture means that over 200 SMPTE transitions and stylized textures like fire, ripple and

Close to the EditDV
EditDV has improved time-line editing and more tools for manipulating clips.

emboss are possible. EditDV includes Pixelan SpiceRack Pro, with 50 transition effects.

Support for Web streaming lets users access QT Export for saving movies directly to popular Web formats including QuickTime, Sorenson, AVI and Cinepak. EditDV has been updated to support all the latest DV camcorders, and iMac DV and G4 owners can use it with Apple's built-in FireWire ports. EditDV 2.0 ships with RotoDC for painting and special effects and PhotoDV for still-image capture. **Computers Unlimited, 0208 358 5857**

DeskJet duo ship

Hewlett-Packard is rolling out a new line-up of Mac products this spring. It includes the DeskJet 1220C Professional Series colour ink-jet printer, priced at £297. Printing speeds are 11ppm in black and 9.5ppm in colour. It outputs in sizes from A6 to A3.

The printer incorporates HP's PhotoREt III Precision technology, which allows the printer to generate 17 different shade levels for each of the primary colours, that can then be layered. It also features ColorSmart III technology, which optimizes colour output quality, automatically enhances low-resolution images, and sharpens and defines high-resolution images without increasing file sizes. The Deskjet 1220C also offers an alternative photo-mode that prints at 2,400dpi on photo paper.

Mid-range releases

For the mid-range market, HP has shipped two DeskJet printers – the 930C (£127) and the 950C (£169). Again with PhotoREt III Precision Technology, the USB printers offer a resolution of 2,400-x-1,200dpi in photo mode. Speeds are 9ppm in black and 7.5ppm in colour for the 930C, and 11ppm in black and 8.5ppm in colour for the 950C.

The company's new consumer printer is the £84 DeskJet 840C, with PhotoREt II Precision Technology and print speeds of 8ppm in black and 5ppm in colour. This printer can be customized with a choice of five coloured lids, priced at £7.85 each. **Hewlett-Packard, 0990 474 747**

Pro active
The £297 DeskJet 1220C. prints at 11ppm in monotone, 9.5ppm in colour, and outputs in sizes from A6 to A3.

Kodak in the picture

Kodak has teamed up with Lexmark to offer the Personal Picture Maker Kit, bundling the DC215 Zoom digital camera with a home photo printer. Priced at £255, it features a built-in card reader that accepts CompactFlash and Smart Media cards, so photos can be transferred from the camera directly to the printer. Images can also be

personalized with borders and text before printing.

Kodak has also launched a Special Edition DC215 Gold Zoom digital camera, featuring a gold metal body embossed with a Millennium 2000 logo, and a USB card reader for fast downloading.

The camera features a 2x wide angle, optical zoom, and one megapixel (1,152-x-864) resolution, to create photo-realistic pictures up to 5-x-7 inches.

Other features are multi-lingual display options, JPEG and FPX finished-file formats, creative border templates, and a VGA resolution option.

It ships with a 4MB memory card for storing between 12 and 54 images, Adobe PhotoDeluxe 3.0 Home Edition and ArcSoft PhotoPrinter V2.0. **Kodak 0870 243 0270**

Cluster of sapphires

Sapphire Innovations has released a range of plug-ins and resources for graphics artists: Cog Edges and Star Edges are sets of 100 royalty-free JPEG borders; Sparkle contains 1,500 royalty-free symbols for use in Flash 4; Sapphire Pack 1 is a set of ten plug-ins for Illustrator 8; Nozzles features 100 nozzle files for Painter-related products. They cost between $10 and $44. **Sapphire Innovations, www.i-us.com**

Formac measures up

Formac has introduced a 21-inch monitor, the Pro Nitron 21/750 Display. It has a 19.9-inch viewable area and features Formac's new super-fine pitch Trinitron tube, offering a dot-pitch of 0.24mm and resolutions up to 1,600-x-1,280 at 82Hz. Formac is offering a three-year on-site warranty. The monitor costs £589. **Formac, 020 8533 4040**

USB-capable cable

Belkin has introduced the USB VideoBus. This lets Macintosh users connect to camcorders, VCRs or video source in order to capture live video and still images. VideoBus can handle both analogue and digital signals via an RCA or S-Video connector. The VideoBus comes with Strata 3D's VideoShop 4.5 and QuickTime 3.0, and costs £79.99. **Belkin, 01604 678 300**

Info a penny

InfoManager 1.1 from MacEase is a new $39.95 Internet research tool that integrates a clipboard, clipping file, printing, notes, editing, file conversion, and auto-saving. Buy through the shareware distribution centre at **www.kagi.com/MacEase/ infomanager_main_page.html**

StuffIt is developed

Aladdin Systems has released StuffIt Engine SDK 5.5, which lets software developers include the latest StuffIt Engine in their software. The new SDK (software developer kit) gives third-party developers support for StuffIt archives (.sit). By licensing the StuffIt Engine, a developer's product can create smaller StuffIt 5.5 archives, self-extracting archives (.sea), and encrypted archives. Zip compression and Bzip compression and decompression are supported. It also provides 25 per cent tighter compression than the previous version. The StuffIt Engine SDK 5.5 is available directly from Aladdin. For pricing details visit www.aladdinsys.com

CDs & books

Te Neues' Net move
Te Neues has released two £9.95 Internet guide books. *Internet Cool Guide for Entertainment* covers 600 leisure-based sites and *The Internet Cool Guide for Shopping* lists 600 online retailers. It also shows online shoppers how to ensure credit card privacy, to search for the perfect gift, and to compare prices.
Te Neues 0208 898 7774

That figures...
Knowledge Adventure has published the Maths Blaster of maths programmes for children. The £20 Blaster titles have been upgraded and localized for the UK, offering newly designed graphics and activities. They are comprehensive curriculum-based CDs with varying levels and interactive arcade-style games. There are two flavours, one for ages five to seven and one for six- to eight-year olds.
Havas Interactive, 0118 9209 100

Virgin Net guides
Virgin has brought out new Internet guides priced at £4.99 each – *The Virgin Internet Guide to Money* and *The Virgin Internet Music Guide*.
Virgin Publishing, 0207 386 3300

PhotoDisc showcase
PhotoDisc's Resource Book 13 showcases the latest ten discs from its royalty-free image collection. They include Work Day, An Evening Out and Home Comforts. The discs can be purchased from www.photodisc.com/uk, or at http://cdstore.photodisc.co.uk.
PhotoDisc 0845 302 1212

Picture perfect

Ricoh has unveiled the lightweight, compact RDC-6000 digital camera (pictured below). Priced at £322, the RDC-6000 boasts a choice of four image resolutions, including Image Enlargement, that enhances the camera's 2.14-megapixel CCD and allows it to output images of three million pixels.

Other key features are the selectable ISO mode, an 8.3mm lens, 2x/3x/4x stepped digital-zoom, and 1.8-inch TFT LCD. It also has white-balance calibration, text input, grid template, and multi-picture/zoom or auto playback features. Its built-in flash has auto, slow synchro and red-eye reduction.

The RDC-6000 ships with a range of software from ArcSoft. PhotoImpression 2000 is an easy-to-use graphics software package; PhotoMontage 2000 is a new version of the montage software that packs new features, such as automatic colour adjustment; VideoImpression 1.5 is a video-editing package; and PhotoFantasy 2000 creates fantasy images with background images. It comes with an 8MB SmartMedia card, USB and serial cables, lithium-ion battery, AC adaptor and battery charger, and all other standard accessories.
Johnson's Photopia, 01782 753 355

A real PAL
The RDC-6000 can record movie footage that can be output to PAL video format.

Scanner lights way

Astra firework
The Astra 4000U has an optical resolution of 1,200-x-2,400dpi

Umax UK has added the Astra 4000U to its scanner range. The model has a legal-sized bed, covering a maximum area of 216-x-356mm, and is designed for the consumer and SoHo markets.

Positioned between the entry-level Astra 2000 and the professional PowerLook series, the new Astra 4000U has an optical resolution of 1,200-x-2,400dpi. The scanner uses a single-pass method via its single CCD-array (charged coupled device) made up of 10,500 CCD elements.

The scanning area has a 24-bit colour depth – upgradeable to 36-bit. In 36-bit mode, Umax Bit Enhancement Technology enhances the signal-to-noise ratio, improving image quality.

An optional easy-to-connect transparency adaptor is available, providing a maximum scan area of 216-x-297mm.

The USB-equipped Astra 4000U ships for £219, complete with Adobe Photoshop 5.0 LE, and Caere OmniPage LE OCR software.
IMC 01344 871 329

SoHo market is marked out by FotoStation 4.0

FotoWare has launched FotoStation 4.0, its digital-asset management system for the small or home office (SoHo) market.

The product can administer, store and locate up to 80,000 images on both PC and Mac platforms and can sort images from digital cameras, scanners, CDs and the Web. Nikon recently announced that it will be bundling FotoStation 4.0 with its digital-imaging products, including the new D1 digital camera. FotoStation 4.0 adds caption and text information to images and offers a handy editing feature that acts like a cut-down version of Photoshop.

Other features include an email function, so users can send images easily, a Web optimization function and the ability to search computer hard drives for image files, which can then be archived. A fully functioning, 15-day trial version of FotoStation 4.0 is included on this month's cover CD. The full version costs £90.
Metasys, 01780 721 001

David Fanning

Dot-com stocks are soaring through the roof
– which is sure to come crashing down.

Profits of doom

Ever since the first dot com floatation, I've been sceptical of the benefits of e-commerce investments. But while I sat around forewarning that it was a risky business, many people – probably including many of our readers – have been cleaning up.

For example, if on April 12, 1996 you had chosen to buy Yahoo shares, you'd have paid $2.75 per share. Three months later you'd have seen your shares sink to $1.35 – and doubtless I was crowing "I told you so" to anyone who'd listen. But if you'd bought 100 shares back then – costing around £85 – they'd now be worth more than £10,000. Boy, am I an idiot. I really could do with that kind of dough now.

My lack of foresight was down to a lack of understanding of how the stock market works. I thought companies needed a product to make a profit – but even though e-companies are making huge losses, their shares are viewed as an investment in market share, not products. Even though there is no physical thing to sell, these companies are breaking new ground and will make their money at a later date. More importantly, even though many people don't understand how dot com companies operate, they do understand that popular stocks will always rise.

At a recent press gathering, I spoke to a number of my IT press pals about dot com stocks. They all understand that dot-com trading is based on a gold rush of investors who understand little about the companies. It doesn't matter if the company remains in the red, as long as investors are queuing up to buy stock. Stock-market gurus have a surprisingly frank name for investment in over-priced stock: the Greater Fool Theory. It's so-called because people buy Internet stocks thinking they can find greater fools than themselves to sell them on to.

There is a lot of guff talked about the fact e-commerce is a new market, and that we have nothing to compare this kind of market action to. In fact, there are plenty of parallels in history that feature wildly overpriced fad stocks.

One such fad – the tulip bulb frenzy of the 1630s – was the inspiration for a recent spoof site called itulip.com. Here, you can discover up-to-the-minute warnings of any impending shares bubble-burst, along with historical information on disastrous investments.

At the height of tulip-mania, a single bulb sold for 4,200 gilders – almost £1 million by today's standards. This wasn't a speculation on expected earnings of a bulb, but speculation on the possibility of selling it to a bigger sucker. Sound familiar?

If you're unconvinced by the tulip argument, then the US railroad story may do the trick.

In the 1830s, the railroad across the US promised faster and more efficient communications and help business – a superhighway of its day, if you like. It did result in this – but not to a degree that warranted the vastly overpriced stock. Consequently, on August 24, 1857, the bubble burst and the stock was derailed – big time.

Similarly, in the 1920s, radio promised improvements to business communication. In 1929 that bubble also popped, leaving RCA – the only profitable radio company – with just three per cent of its previous value. Even established profitable companies can be overpriced.

E-commerce stock isn't actually the first tech-stock rush, for in the late 1960s it was boom-time for companies such as Itek and University Computing. Who they? Exactly.

I'm not sure what happened to them in the long run, but in 1970 a crash in tech stocks knocked off 90 and 93 per cent respectively off each company's value. It's reckoned that tech companies lost an average of 87 per cent of their value in 1970 alone.

As an early detractor of Internet stocks, I could be accused of sour grapes – because I didn't make my fortune. You may be right, but at least this way I know I'll be right in the long run. It may be tomorrow, or next month – or even next year, but eventually, the bubble will burst. It's probably the surest prediction I've ever made. I don't get to be any richer, but neither will I be any poorer.

On that note, I'd like to leave you with a cautionary poem from the 1600s. As Mark Twain remarked: "History may not repeat itself, but it might rhyme".

Some in clandestine companies combine;
Erect new stocks to trade beyond the line;
With air and empty names beguile the town,
And raise new credits first, then cry 'em down;
Divide the empty nothing into shares,
And set the crowd together by the ears.
Daniel Defoe (1660-1731)   MW
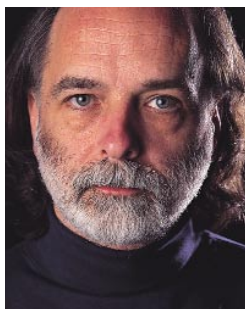
Michael Prochak

Apple should be opening doors for Web creatives – not slamming them shut.

Think diffident

According to Proust, the more familiar we become with something, the less we really understand or know about it. While not exactly breeding contempt, familiarity most certainly leads to complacency or ennui. I suppose when something's new, we're more interested and attentive, and marvel at the most intimate details of possibility.

But before you know it, the spark, excitement, seduction or whatever it was that made something special, evaporates without trace. And before you can say "happily ever after", you find you're going through the motions, with no clear idea of what the purpose, attraction or vision was to begin with. Instead, you substitute a set of assumptions that you've mistaken for insight and brashly auto-pilot your behaviour accordingly. Unfortunately, this sort of thing also happens to ideas and particularly, ideals.

Despite Apple's clever but grammatically challenged campaign to Think Different, there's plenty of evidence to suggest that inside Apple, there are still far too many people who may be familiar with that message, but actually understand or know very little about what it truly means.

Sure, Apple still likes to be seen as a bit rebellious, creative, anti-establishment, literate and artistic – in many respects, the new Macs still reflect this grand design. But behind the slick design and media cool, history does have a nasty habit of repeating itself. Out in Userville and Creative-content Land, the old phrase "great computers, shame about the people" is cropping up with disturbing regularity in conversations about how Apple is currently implementing – or not implementing – perceived Apple ideals.

As you know, I've been banging on for ages now about some of the creative options and potential that digital technology and the Web offers creatives working outside of the traditional established institutions and cabals.

The music industry is already feeling the tremors and other sectors, such as publishing, shouldn't be too far behind. As previously disenfranchised individuals begin to explore these new outlets, companies like Apple have two choices: they can either begin to think "different" and get behind some of these innovative projects and initiatives and help nurture a new creative order; or, they can take a corporate view and stick to occasional safe gestures with safe names within the establishment that get safe notice within the usual safe media and PR outlets. If my recent experience is anything to go on, Apple has lost touch with its rebel-roots and has apparently chosen the latter.

I've recently been approached to work on two Web-centric projects. One involves music promotions, management and what amounts to a virtual record label, the other involves an initiative to launch a kind of on-line Booker Prize for writers publishing exclusively on the Web. The music project is also linked to various regional regeneration initiatives in the south east and has attracted support and sponsorship from local media, government and larger companies, such as BT. Through a lot of hard work, the project has recorded and launched a compilation CD contributed to by musicians from around the region – and has organized a major launch at the House of Commons, followed by a showcase of artists at a major London club. When the idea of Web-casting the launch came up, someone suggested approaching Apple, since it thinks different, and purports to be interested in that sort of thing. But when I approached it, the response was extremely negative. Aside from the usual excuses about budgets, the first question I was asked was: "Will the gig include anyone like Annie Lennox?" Well, actually, no. The whole point of this project and the use of the technology is to showcase new talent. The bottom line for Apple was that a House of Commons launch and large London club debut with other corporate backing simply wasn't big enough or safe enough to be interesting. The response to the idea of Web-casting the awards ceremony for the on-line Booker got the same response. So much for thinking different.

Maybe using technology to be truly creative becomes more difficult the more familiar it gets.

Proust loved the newly invented telephone, not as a mundane means of personal communication, but as a creative tool for listening to live concerts and plays in the comfort of his own home. As the telephone became more pervasive and familiar, the vision of using it for anything other than communication gradually receded.

Using the Web as a creative outlet still has the spark of the new that breeds interest and excitement. But creeping familiarity and creative neglect by players like Apple could extinguish that creative spark before it can ignite. And if you think the Web's boring now... you just wait. **MW**

Easy as pie
Go to the View drop-down menu and then slide down to Customize Toolbars. A selection of icons will appear in the main window. Just drag-&-drop any icon to the tool bar, and Internet Explorer 5.0 will update it.

Upgrade for the world's most popular browser

Internet Explorer 5.0
Publisher: Microsoft   www.microsoft.com
Pros: Simple installation; many new features; it's free.
Cons: Drag-&-drop text feature sometimes unwieldy; non-appearance of Media Toolbar.
Price: Free from Microsoft's Web site; on Macworld's June CD-ROM.
Star Rating: ★★★★/8.4

Microsoft has made good its promise to deliver Internet Explorer 5.0 for the Mac. The product, in its final form, was released as a 7MB download on March 27.

There was a short delay before the latest release of Microsoft's award-winning series of browsers. This was due to the intensive work the company put into its Tasman rendering engine, and the company's desire to make IE 5.0 "the best Mac browser".
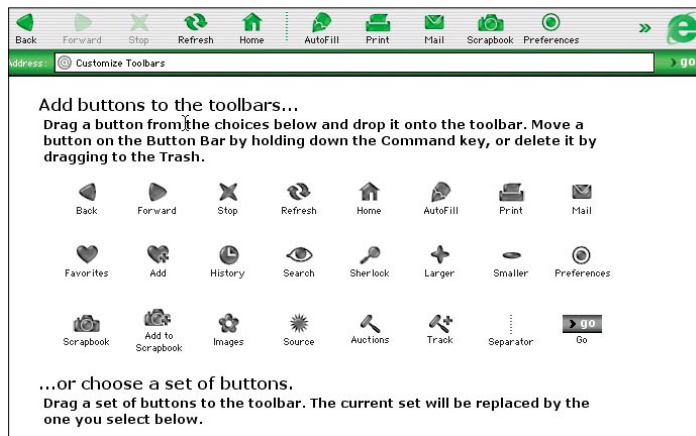
Tasman, the new rendering engine, is the core program that powers many of the features in IE 5.0. The new engine, into which Microsoft invested over a year's research and development, supports all published Internet-content standards as defined by the World Wide Web Consortium. IE 5.0 supports HTML 4.0, Cascading Style Sheets (CSS) 1.0, Document Object Model (DOM) 1.0 HTML, Extensible Markup Language (XML) and Portable Network Graphics (PNG). And, Tasman can display Web pages at up to 500 per cent magnification.

The company has filled the browser with a series of features to give its users a customizable doorway to the Web. Modern Mac owners will enjoy the choice of appearances – Tangerine and Graphite are two of the nine appearances the browser supports. The Toolbar can also be adapted. Microsoft offers an optional set of tool buttons that can be easily added to those available in the standard install.

IE 5.0 has other nice features – the Internet Scrapbook will save entire Web pages singly, or in collections, in an easy-to-access area. This offers a flexible, and easy-to-use means of archiving and retrieving information for research and to maintain records of e-commerce. Microsoft claims this feature has never been offered before on any browser on any platform. The forms Autofill command has been greatly improved, too.

Going, going...
The Auction Manager feature will prove useful for the e-consumer. It looks after a user's online bids, informing them when they have been outbid, or when an auction is about to end. So, using Sherlock, a user might find an auction site, and make a bid through Auction Manager, which would keep a track on the progress of the auction, letting you know if the bid was successful, with no need to return to the Auction site unnecessarily.

One extraordinarily useful feature is IE 5.0's text-display capability. The application will automatically display Web pages at 96dpi on the Macintosh. This is the standard display for Web sites created on Windows machines, but text can also be displayed at up to 500 per cent. This means an end to pages full of tiny, hard-to-read text, and should enhance many users' Web-browsing experience. It also means that Webmasters will not need to rewrite pages for the Windows and Mac versions of IE 5.0, as a Mac should display Windows-built pages equally well.

Microsoft has linked its browser with Alexa, a free Web-navigation service that offers information about each site visited. Accessed through the Tool Bar in a section called Related Links, Alexa suggests links relevant to the page that's currently being browsed, showing its results in the Search window.

Finally, Internet Explorer 5.0 can drag-&-drop text from the browser window into another application window. Microsoft seems proud of the fact that the browser will display a faint "ghost" image as the text is dragged across the page.

Microsoft promises that an upgrade to IE 5.0 will offer full Mac OS X compatibility. One disappointing note among all the jubilation over the new browser is the non-appearance of the hotly expected Media Toolbar. Announced at Macworld Expo, San Francisco, the toolbar was to make IE 5.0's access and playback of streaming-media technology as simple as turning on a radio.

The bordered-link function proved a bone of contention in the office. When a link is clicked on, IE 5 puts a border around it, and it stops the link changing colour. If you don't like it, turn off keyboard accessibility in the Preferences panel.

Internet Explorer 5.0 requires at least 8MB free RAM, 12MB of hard-disk space, a PowerPC processor and Mac OS 7.6.1 or later to function. More memory and hard-disk space is recommended.

It's available as a free, 7MB-plus download from Microsoft's Web site. Or it's on next month's Macworld CD.

Macworld's buying advice
IE 5.0 has loads of useful features. The drag-&-drop text function is very handy. A big bonus is it doesn't seem too buggy – no one here's crashed because of it yet, and it's a breeze to install.
Jonny Evans

Mac flavoured
Internet Explorer 5.0 comes in every Mac colour. So now there's no excuse for clashing with the Mac OS.

In the three years that I've lived in my Acton maisonette, I've received no protests from neighbours about noise. That all changed within 30 minutes of hooking-up an iSub sub-woofer to my iMac DV – although admittedly, its first challenge *was* Motorhead's *Ace of Spades*. Standing in for a Manhattan of high-rise Marshall stack-amps is a lot to ask of any speaker, but the iSub did enough to make my intestines vibrate from one room away – and those of my broom-wielding neighbour from one house away.

The iSub is made for Apple by speaker specialists harman/kardon – who also makes the in-built speakers for the latest iMacs. It was crafted by Apple design guru Jonathan Ive, who has taken transparency as far as it can go – but as with everything Ive touches, it does look cool.

What I really loved about the 20W iSub is the way it added new dimensions to my iMac. I rented my first DVD movie shortly after buying the iMac, for the novelty more than anything. A letterbox image on a 15-inch screen is never going to be a mind-expanding experience, but the iSub added an authentic cinematic sound.

Although the in-built harman\kardon speakers are the best any Mac has ever had, they still sound weedy compared to a CD player. But with the added muscle of the iSub, the iMac, if anything, sounded better than my £85 portable CD system.

iMac gaming is another pursuit to benefit markedly from the iSub. I ran through a selection of favourites from various *Macworld* cover CDs – and all were far more immersive with the added depth of sound. Music, explosions, and special effects often assumed epic proportions.

There are just a couple of technical points to bear in mind with the iSub. One, is that you may require a Mac OS 9 Audio update. This can be downloaded from http://asu.info.apple.com.swupdates.nsf.artnum/n11573. The other, is to make sure you disable the 3D Sound option that appears on the CD pop-up menu on the Control Strip. If you fail to do this, the iSub's sound will be muted.

Otherwise, all that remains is to attach the iSub via a USB port and then balance its sound against that from the in-built speakers. This is performed via the Speaker Setup section of the Sound Control Panel.

Clearly superior sub-woofer

iSub
Manufacturer: harman/kardon   www.harmankardon.com
Distributor: Apple   www.apple.com
Pros: Makes the iMac sound as good as its looks; makes music CDs and DVD films far more enjoyable.
Cons: Doesn't work with older iMacs; watch out for the neighbours.
Price: Europe pricing unconfirmed, but Apple says it will be equivalent of $99, (£81 excluding VAT).
Star Rating: ★★★★/8.9

The iSub is for use only with the new 350MHz iMac, iMac DV and iMac DV Special Edition. You will also need to install Mac OS 9.

Macworld's buying advice
If you're an avid gamer, then you'll love the iSub; it's the last piece in the Mac gaming jigsaw, making games sound as good as they look. The iSub also transforms your iMac into a half-decent sound system, adding another string to its already burgeoning bow.

The shame is that only owners of the latest iMacs will enjoy the benefits of iSub's sound.
Sean Ashcroft

A Web-friendly digital-video camera in funky coloured plastic with an eye-catching-design and anthropomorphically catchy name. Portable, small, so well-designed it even has a built-in lens cover, and it's USB. Blow me.

Fed up of working nine-to-five? Well, Kritter USB could be for you, if you want to make low-budget movies for the Web – an adult *Blair Witch Project* anyone?

For the hi-tech road warrior about town, you can make that meeting, by way of video conferencing, or chat politely with like-minded adults in CUSeeMe chatrooms. The manufacturer claims its product is most appropriate for the PowerBook generation – yet its funky design is a perfect match for owners of any of

Apple's current crop of machines. It's lightweight, but sadly, this also means the natural kinks in the USB cable can make the camera unstable, even when you try mounting it above your laptop's screen. The manufacturers do have a stand for the Kritter, but it costs extra.

Digital video eats up hard-drive space, and for some reason, the ReelEyes software package included doesn't like saving movies over four minutes long. But, the resolution at 640-x-480 is still pretty good.

As a Web cam, the Kritter is good. It's capable of handling quite high resolutions – though it's not so hot in low-light conditions. Kritter is no slow-mover, capable of capturing video at up to 30fps, and it offers dual-speed (50/60Hz) flicker control. It's got an Auto White Balance feature, but you can also adjust colour and gamma balances manually. The Kritter offers 640-x-480, 320-x-240 and 160-x-120 VGA video outputs.

The Kritter lives for speed, needing a processor at 233MHz or more, OS 8.6 or later and QuickTime 3.0 on-board. The package includes a cut-down version of iRez's RealEyes software and some handy

Easy-to-use Web cam

Kritter USB
Publisher: iRez   www.irez.com
Distributor: AM Micro   (01392 426 473)
Pros: Easy to use.
Cons: USB cable can overbalance the Kritter; too many people are trying to make a living through online porn.
Price: £109 (excluding VAT)
Star Rating: ★★★★/8.1

Web conference, chat and colour adjustment programs. A bundled compression suite would be a nice touch, as you end up with very large files without it – but there are workrounds for this – such as QuickTime 4 Pro.

Macworld's buying advice
To pass the time on a rainy day, send a greeting to a friend or relative online, Kritter is an asset. As a portable solution, or just an object for entertainment, it's great. It's a digital-video snapshot camera for the masses.
Jonny Evans

Lightweight projectors, tested and rated

Product: EMP-500c	**Product:** EMP-710c	**Product:** LP330	**Product:** MultiSync LT84	**Product:** Notevision7
Manufacturer: Epson	**Manufacturer:** Epson	**Manufacturer:** InFocus	**Manufacturer:** NEC	**Manufacturer:** Sharp
Contact: 01442 261 144	**Contact:** 01442 261 144	**Contact:** 020 8213 2100	**Contact:** 020 8752 3535	**Contact:** 0800 262 958
Price: £2,299 ex VAT	**Price:** £4,599 ex VAT	**Price:** £4,295 ex VAT	**Price:** £3,299 ex VAT	**Price:** £4,995 ex VAT
Star Rating: ★★★/6.9	**Star Rating:** ★★★★/8.7	**Star Rating:** ★★/4.9	**Star Rating:** ★★★★/8.5	**Star Rating:** ★★★/6.9

Lugging around a heavy projector for a mobile presentation is nobody's idea of fun. A lightweight projector is a better option. Macworld Lab looked at five projectors, each weighing under ten pounds, and we were pleasantly surprised.

All of the projectors offer either outstanding or acceptable image contrast, colour, and brightness (see "Battle of the lightweights" for subjective test results). Unfortunately, although the projectors are small in size, they're not small in price – they start at £2,299 and climb from there. It's important to remember that you're paying for weight – or lack of it. These projectors' features can't match those of heavier models.

Our jury of experts looked at two LCD models – Epson's EMP-500c and EMP-710c – and three DLP (digital light processing) models – the InFocus LP330, the NEC MultiSync LT84, and the Sharp Notevision7. The projectors were given subjective tests to evaluate brightness, contrast, colour, greyscale output, text rendering, and DVD video display. In tests of brightness, contrast, and colour, none of the projectors performed unacceptably; however, the Epson EMP-710c was the brightest and most pleasing to look at.

Similarly, in our greyscale tests, all the projectors achieved either excellent or fair results – the Epson EMP-710c and the NEC MultiSync LT84 were the best of the bunch. The InFocus LP330 produced a fair greyscale image, but displayed "dancing" pixels that didn't go away when we adjusted the display.

For our text test, we used a simple PowerPoint presentation. With the exception of the InFocus LP330, the DLP projectors presented even eight-point fonts clearly – something the LCD projectors couldn't do, although they could accurately display fonts as small as 16-point before text began looking jagged and unreadable.

We tested the projectors' DVD video abilities using a set-top DVD player – similar to what you'd see in a simple home-theatre set-up. We connected the player to the projectors using an S-Video cable, an option available on all the models. The DLP projectors performed adequately when projecting DVD video, but suffered from graininess and poor image quality. The LCD projectors did better, with the Epson EMP-500c and 710c ranking highest.

Set it and forget it
If you'll be connecting a projector to a variety of computers, it's important that the equipment works with little effort, and is easy to set up. All the projectors we tested, except the InFocus LP330, could be set-up with little or no problem. The InFocus required resetting monitor resolutions, restarting the computer, and re-syncing to get the picture to display correctly.

The Sharp Notevision7 is the best plug-&-play projector of the group. It not only offers worry-free set-up but also displays helpful, accurate progress bars while it warms up and while it syncs with the computer after you change the resolution. The other projectors aren't nearly as helpful, displaying either a blank screen or a simple dialogue box.

All the projectors come with both on-board and remote controls. The Sharp Notevision7, and NEC MultiSync have remotes that include laser pointers. We found that the laser pointer drew attention to the screen faster than a mouse pointer or other projector-generated on-screen pointers.

The remotes can also be used to control the mouse. We judged the NEC MultiSync's optional remote to be the best in this category –it features a multi-directional pad for mouse movement. All the projectors are controllable from more than 20 feet away, even with obstacles between the remote and the projector.

In a small, quiet room, these projectors can pump out the sound. The Epson EMP-710c offers 3D surround sound, while the InFocus and NEC projectors feature stereo sound – the others offer mono sound.

Macworld's buying advice
Full-size projectors are less expensive and better equipped than any of the lightweight projectors we tested. But, if your projector will be moved around, taken on the road, or used in conjunction with a laptop, the lower weight might be worth the higher price. If you can spend the money, go for the Epson EMP-710c. It packs the best performance into one of the lightest chassis, and offers trouble-free set-up.
Brett Larson

Lightweight champion
Epson's EMP-710c came first in its division, just beating NEC's MultiSync to first spot.

Battle of the lightweights

	Brightness	Contrast	Colour	Greyscale	Text	DVD video
Epson EMP-500c	Excellent	Excellent	Fair	Fair	Fair	Excellent
Epson EMP-710c	Excellent	Excellent	Excellent	Excellent	Fair	Excellent
InFocus LP330	Excellent	Excellent	Fair	Fair	Fair	Fair
NEC MultiSync LT84	Excellent	Fair	Fair	Excellent	Excellent	Fair
Sharp Notevision7	Fair	Fair	Fair	Fair	Excellent	Fair

Behind our tests — Macworld Lab conducted subjective tests, determining quality to be excellent, fair, or poor. Each projector was rated according to how well it displayed our test images created in Adobe Photoshop and Microsoft PowerPoint. Subjective DVD-video quality was gauged using an S-Video signal from a set-top DVD player. Macworld Lab testing is supervised by Kevin Mitchell

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TC|Works has upgraded its digital-audio software, Spark, to version 1.5. It takes care of editing, processing and mastering of audio files normally created elsewhere – for instance, using Cubase or Pro Tools.

Spark has two main windows, the Browser View and the Master View. The Browser View is divided into three sections containing the File View – listing files you have imported – the Wave Editor, and the Playlist.

The Playlist lists the tracks that are ready to burn to CD – although you have to transfer to Adaptec Toast to do this. A Cut editor, accessible from the Playlist window, allows the fine adjustment of transitions between files.

The Wave editor cuts-&-pastes regions within audio files, and applies all the usual processes – such as Normalize, Reverse and Fades. A selection of plug-ins is provided, including basic filters, delay and reverb, and the Native Compressor/Limiter and MaxIt mastering plug-ins. These are not the most exciting plug-ins I have ever encountered. Still, they work well enough – and you can always add more in the popular VST format.

The Master View is for realtime processing using

Audio processing and mastering

TC Spark 1.5
Publisher: TC|Works   www.tcworks.de
Distributor: Arbiter (020 8202 1199)
Pros: Spark's FXmachine technology provides advanced effects routings.
Cons: Doesn't support Digidesign TDM.
Price: £295 (including VAT)
Star Rating: ★★★★/8.0

the FXmachine. This works with up to four parallel streams of audio, with up to five plug-ins in each stream and allows audio processing in realtime. These streams can be split and merged to create the most complex routings you could need.

The Master View can be used as a plug-in itself – it works with Steinberg VST- or MotU MAS-compatible software, such as Cubase or Digital Performer.

Jam packed
Spark is chock full of other features. It supports up to 24-bit/96 kHz audio files, and can work with AIFF, Sound Designer, WAV and Quicktime formats. Files can be opened or saved in MP3 format. Any QuickTime movie can be opened and the audio stripped out for editing, the file can them be re-saved in the QuickTime format.

The Batch Processing Converter converts files into other formats in one batch – while applying any required processing along the way.

Macworld's buying advice
The main competition is BIAS Peak, which doesn't have the effects-routing feature but is compatible with Pro Tools TDM systems. I prefer Peak, but appreciate the power of Spark's Master View routings and Batch Conversion facilities – which justifies buying Spark by itself.
Mike Collins

Trilogy
The Master view is split into three sections: Wave Edit cuts-&-pastes regions; the Playlist shows all files that are ready to be burnt to CD; and the File list shows all the files that have been imported.

There are times when people want to avoid you. As a sub editor, I'm always chasing people for deadlines, the resulting unanswered phones and claims of missed emails leave me fuming.

MacPopUp, I hoped, was the answer to my prayers. It sends messages to anyone on a local network – as long as they have MacPopUp installed. There's no chance of missed messages as a window appears on the recipient's screen.

The system requirements are small – any PowerPC processor, 1MB of RAM, Mac OS 8.1 or later, OpenTransport, and a LAN with TCP/IP service.

MacPopUp would be great for any office – especially if messages are sent between floors. The messages appear instantly, and there's a text-to-speech option – although this did get annoying. It's also compatible with Microsoft's WinPopup.

The trouble is its unreliability – it often took me five tries to send message.

Like email, MacPopUp is great for distracting you from work. Sending abusive messages, and then

Instant network-messages

MacPopUp
Publisher: MacPopUp   www.macpopup.com
Pros: Easy to use; instant results.
Cons: Frequent connection failures.
Price: Single user licence, $25; two-to-ten users, $20 per user; 11-49 users, $15.
Star Rating: ★★★/6.9

hearing them played on the other side of the office gave the editorial department a full 20 minutes of fun.

Macworld's buying advice
MacPopUp is OK. It's cheap, it's quick, and it's easy to use. Although not utterly reliable, it is on this month's *Macworld* shareware CD – so give it a try.
Woody Phillips

Over the past two years, Adobe has launched several Web-based design products. Adobe's Internet strategy has included PageMill then GoLive, ImageReady and ImageStyler, and now LiveMotion. As Adobe is the top graphics and creative-software developer, it was only a matter of time before it produced an enhancement from the two earlier limited animation tools, ImageStyler and ImageReady – now incorporated into Photoshop 5.5.

The release of the Shockwave Flash (SWF) source code by Macromedia in late 1998 allowed other developers to build on the outstanding success of Flash-made Web-page content.

Over a quarter of a million users have downloaded the Flash player, and 90 per cent of people can view SWF content. Adobe fans can now take advantage of this' using LiveMotion.

With LiveMotion, Adobe has created a Web-design tool that is a blend of high-quality drawing tools, ImageStyler's fun and easy-to-create rollover effects, and the fabulous vector-based SWF format animation ability.

Now that the Web is moving towards high-impact broadband content, LiveMotion is being hailed by Adobe as the solution for Web designers who want to take advantage of the greater bandwidth available. The phrase "Flash Killer" has also been bandied about. Check out the Web site dedicated to LiveMotion at www.flashkiller.com.

The public beta of LiveMotion 1.0 we looked at is available for download from Adobe's Web site. It's definitely worth downloading. Some of the more cosmetic features were not totally implemented, such as the preferences and the ability to have a pre-loading movie. Rumour has it, Adobe also has some additional features up its sleeve for the finished product.

Memory vs speed

The default memory needed is 30MB, but inevitably, I had to increase this when I stretched LiveMotion's memory needs by adding multiple effects to multiple objects on a single timeline. The timeline also appeared to have a limit of ten seconds for animation length. But the most exciting features were there to try out – especially the Flash format. The addition of Flash animation means Adobe customers can now take advantage of the SWF format. This allows interactive, fabulous-looking animations to be created with the incredibly small file sizes needed for Web deployment.

The Adobe team that built LiveMotion is the same team of programmers that worked on ImageStyler. The similarities in the user interface are instantly obvious.

Menus and tool palette icons are similar to Photoshop, so old hands will feel immediately at home and get to grips with the production flow straight away. I managed to create a simple three-segment animation in a couple of minutes.

Adobe hasn't ignored interactivity in the SWF animation, although LiveMotion doesn't yet have the same level of scripting capabilities as Macromedia's own Flash. So, no interactive shops fronts or complicated online games as yet. LiveMotion supports scripting, but it isn't as advanced in this first version as Flash 4. The behaviours in LiveMotion are JavaScript based, and allow basic actions to be set to frames and individual elements of objects. When LiveMotion supports SVG (scalabel vector graphics), the JavaScripting element will become more relevant.

Integration with the rest of Adobe's flagship applications, such as Photoshop, Illustrator and GoLive, is excellent. It offers a complete solution to rival Macromedia's suite of Web tools. LiveMotion can import GIF, JPG, TIFF, EPS and layered files from Illustrator and Photoshop. Although video is not yet supported in LiveMotion, later versions will support it. Adobe has kindly provided some excellent tutorials for download alongside the beta, that are well worth running through. A good place to get an idea of how well the beta of LiveMotion has been going down with professional users is on the online Adobe forums (www.adobeforums.com). You can also check out the Macromedia Flash news groups for the low-down of impressions from Flash users.

All objects and transformations applied to objects remain editable. The Style palette allows any style to be created using a combination of the excellent vector-drawing tools and saved as styles for use again on forthcoming elements of design. Bevelling, textures, patterns and gradient can also be applied. The number of readymade textures and shapes in the beta were limited, but there will presumably be more to choose from in the shipping version. The Library is available to store

multiple-use objects and effects. In the beta, four ready-made AIFF format sounds can be applied, looped and manipulated within LiveMotion. Other major sound formats are supported, including WAV, SND, .AU, and MP3. Multiple audio tracks can be applied, as well as fade-in and -out and panning controls.

Simple and complex animations, triggered animations with and without looping, and independent timeline behaviours can be created. Looping can also be attached to separate objects on independent timelines. Remote rollovers, where a mouse moves over an area on a site and triggers a state change of another object in your composition, can be made. You can save your rollover layer animations to the Style palette, using it like a built-in library for multiple ease of use in later work. Simply bring the Style palette to the front and drag the layer to the palette.

Opacity and distortion can also be applied to object elements. The support for transparency in the vector drawing layers is a great bonus for LiveMotion.
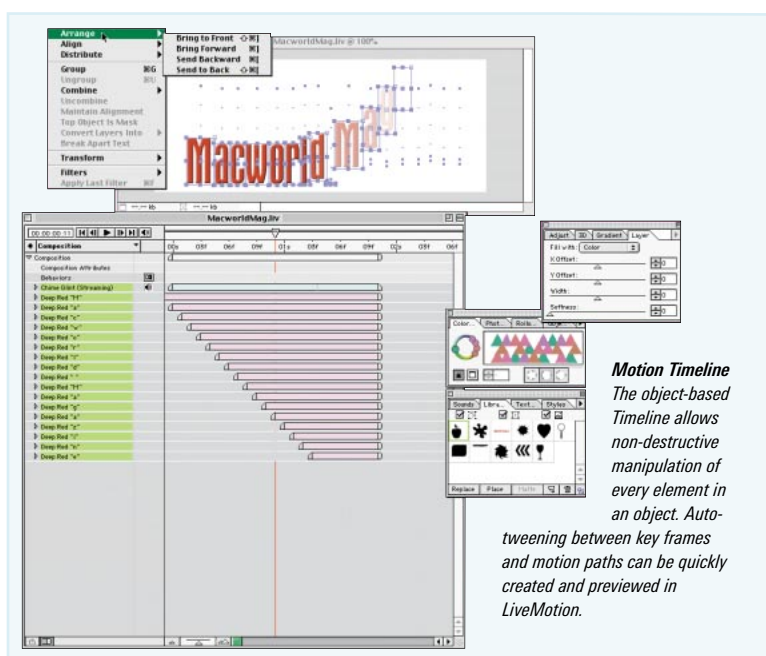
Motion Timeline
The object-based Timeline allows non-destructive manipulation of every element in an object. Auto-tweening between key frames and motion paths can be quickly created and previewed in LiveMotion.

Falling down
Entire compositions can be imported directly from Photoshop and Illustrator into LiveMotion for animation effects to be applied.

GIF, JPG and even MP3 files. An entire composition, including the HTML code needed to place the animation on a Web page, can also be exported. Options for auto-slicing and auto-layout are also available. The Live preview feature enables designers to check how their settings will effect the final output – shortening production time.

Batch replace is a feature originally from ImageStyler, which allowed quick, timesaving changes to be made over multiple banners – for example, managing online advertising banners. Objects in LiveMotion can be marked as replaceable. To make a text-based object replaceable, simply select a replacement heading in the Web tool palette for that object. The download sizes resulting when exporting to SWF format aren't quite as good as Flash. My SWF exports tended to become bitmapped in playback in Internet Explorer. The ability to have an interim flash movie playing while the main movie is downloading was not working in the beta, but should be in the shipping version.

Macworld's buying advice

If you're itching to get started on Web animation and find Flash too intimidating, then LiveMotion is an good alternative. But, don't expect to be able to create complicated interactive Flash games or Web shop fronts just yet.

LiveMotion is incredibly easy to learn, and has the advantage of the bézier tools and good bitmap support. You can have professional-looking Flash animations on your site within minutes of launching the application for the first time.

For newcomers to Web animation, the familiar Adobe interface will ensure they'll love this product. However, without the depth of scripting features and SVG support, which are due in a later release, it's unlikely LiveMotion will be the Flash killer it's been hailed as. The expected price is £240. It will ship in early May.
Gillian Robertson

The transparency feature is also key in allowing overlays of vector objects on bitmaps. This looks very impressive in finished animations, as objects such as text can be made to look as if they are dissolving through each other.

Time travel

The timeline lays out your animation in as simple a way as possible. Setting out animation elements over time allows you to see exactly what is going on and when. Changes over time to the scaling and rotation of an object, as well as it opacity, are also supported. The flexibility allowed by this is enormous.

Each element on the LiveMotion timeline can be animated independently, rather than using layers as Flash does. The simple layout of the timeline makes it easy to understand and use. The selection tools include select-&-drag and sub-group selection. To save monitor space, the timeline can be reduced to view all objects and key frames at one glance – rather than having to scroll left or right. However, this means things can become fiddly when synching multiple objects over time – for example, tweening multiple animated objects between key frames. You can group objects together to apply an effect or style to each.

When applying a sound or style to an object, the timeline marker can be moved backwards or forwards to ensure a smooth transformation – or an instant swap. Simply dragging the object across the work area from a starting point to an end

point can create motion paths.

The drawing and shape tools include circle, ellipses, squares, rounded rectangles and polygons. A bézier pen tool, layer offset and transformation tool are also included, but no paintbrush or pencil tool, unfortunately. There is also an HTML text tool to add custom code to the document. The font manipulation and placement is as precise and complete as you'd expect from Adobe software.

Integrating closely with Illustrator and Photoshop, LiveMotion has very familiar drawing tools. The standard adjustments – such as posterize, brightness, contrast saturation and tint – can be made in LiveMotion. Live Photoshop filters can be applied without leaving the application, and original graphics can be edited in Photoshop and will automatically update in LiveMotion.

Distortion effects such as displace, twirl, magnify and pixelate gradients can be applied alongside 3D object effects, such as bevel, cut-out and emboss. Images created in other formats can be placed directly into LiveMotion and then manipulated. However, one unfortunate, but inevitable, con is that Flash-exported SWF files cannot be imported into LiveMotion, or vice-versa. The import options were for scanned images only. Video is not yet supported in version one, but Adobe stressed that it will be included in a future version as the developers were all After Effects fans.

LiveMotion can export not only in SWF format, but also static formats like PNG,

Familiar feeling
LiveMotion's tool palette will be instantly recognizable to anyone who's used Illustrator or Photoshop.

Flashy
LiveMotion allows animations to be exported as a Flash file, making it compatible with most browsers.

Mac-compatible palm-tops

Palm Vx
Manufacturer: Palm Computing (0800 731 1064)   www.palm.com
Pros: The smallest, slimmest, sexiest Palm around, now with more memory.
Cons: No colour; no expansion options.
Price: £299.99 (including VAT)
Star Rating: ★★★★/8.7

Palm IIIc
Manufacturer: Palm Computing (0800 731 1064) www.palm.com
Pros: It has colour and extra power.
Cons: Bigger than the Visor and Vx; not many colour apps yet.
Price: £349 (including VAT)
Star Rating: ★★★★/8.7

Visor
Manufacturer: Handspring   www.handspring.com
Pros: Springboard expansion-slot; fruity colours; 8MB memory.
Cons: Not as small as the Vx.
Price: Expected to be around £200 with USB cradle – less without it.
Star Rating: ★★★★/8.9

A fter the Apple Newton quietly passed away a few years ago, you could be forgiven for thinking that handheld computers would never catch on. Actually, handheld, or personal digital assistant (PDA) computers – and in particular the Palm – the fastest selling consumer electronic items in history. Selling a phenomenal three million in just three years, handhelds using the Palm OS have caught on quicker than TV, radio or VCRs ever did. Representatives from Palm and Handspring believe that sales will reach as many as 100 million before very long. Confident talk indeed.

If you are unfamiliar with the Palm OS, a little history might help. A small team of engineers and software developers first developed the Palm Pilot. Though it was successful, the company needed to expand quickly. To make this possible, they sold the company to US Robotics. Shortly after, US Robotics was bought by 3Com, and Palm was on its way to the big time. What

the original developers wanted was to have Palm spun-off as a separate company – and they waited until they were told that it wasn't going to happen. So the original team jumped ship and started Handspring. Ironically, 3Com has recently spun-off the Palm division as a separate company.

The latest offerings from Palm are basically updates of the Palm III and the Palm V. The Palm V has been souped-up with 8MB of RAM, four times the original. This might not seem like much memory when compared to desktop machines, but typical Palm applications weigh-in at well below 100K. As base specifications increase, the applications written to use them bulk-up. But for now, 8MB is plenty.

The main attraction of the Palm Vx is the super-sleek casing, it weighs just over 100 grams (4 ounces) and is only 4mm thick, so it can sit in a pocket easily. The Newton never managed to fit into a pocket, and was more book-sized than wallet-sized.

Apart from the extra RAM, the Vx is the same as the old one. It has infrared, for linking to other Palms, the Graffiti text-input software remains the same, and the pre-installed software is no different.

The Palm IIIc is the first-ever colour Palm OS PDA. It may seem frivolous to have colour on a PDA, but colour monitors were once considered frivolous on the Macintosh. The developer world seems confident that colour has a future on the Palm OS, and there are already plenty of applications to take advantage of its colour capabilities. For example, using a Palm IIIc as a digital photo wallet is possible using Club Photo. Simply drag JPEG files to your Palm and you can view them anywhere. Ideal for inflicting your family and pets on unsuspecting strangers.

Colour provides new opportunities for software, and the Palm OS programming community has already taken advantage. Software for Palms already includes spreadsheets and city guides.

Apart from the colour screen, the hardware remains mostly the same, except for the memory bump up to 8MB. The battery lasts only two weeks, rather than the four the Palm Vx offers. But, the two-week life is going to make a difference only if you are travelling overland across the Sahara.

The one thing that works against the IIIc is its size. It isn't much bigger than the Vx, but enough to weigh your pocket down. It is almost 200 grams (6.8 ounces), about double the weight of the Vx.

The Visor from Handspring is the only totally new Palm OS machine. At first glance it looks like the Palm III, except it comes in a familiar array of fruity flavours.

On closer inspection, however, the Visor is slightly smaller and has a unique expansion slot called the Springboard. It works the same way as the GameBoy, with a small card slot in the back. There are big plans for the little slot. Over the course of this year, loads of Springboard devices will be released. On the cards so far is a mobile-phone attachment, a GPS unit, an MP3 player, a bar-code reader and many more. The possibilities are endless.

The Visor will not be launched in the UK until June, but it's worth waiting for. Because of the expansion port, and the company's pedigree, the Visor will be popular – perhaps more so than the Palm.

Macworld's buying advice
The Palm Vx is the ultimate in small and sexy PDAs. If colour is important, then the Palm IIIc is your only colour choice. But for me, the Handspring Visor is the best all-rounder. The Springboard expansion slot is a huge advantage over other PDAs, and there appears to be a good deal of developer support for it. This bodes well for Handspring and the Visor.
David Fanning

Attention to detail is possibly the most over-used reviews phrase ever. Highly accurate, realistic, authentic – any number of idioms could be used, but "attention to detail" gets the nod too frequently. But there are times when nothing but this oft-used expression will do – and this is one of them.

Terra Forma Worldwide is a six-CD set full of high-resolution maps – 87 to be precise – covering the major continents plus a number of global views. Oxford Cartographers created a "continuous relief" model – a 4ft-diameter 3D-image of Earth to you and me – using exhaustive survey data and colouring obtained from NASA satellite images. The maps here are the result of taking photos of this model, with CTPI in Cheltenham scanning the transparencies – yes, a film camera, not a digital one –

England, my England
Paths are so well defined in Photoshop that you can accentuate some countries, mute others, and add drop shadows.

and handling the colour balancing.

Each map comes complete with a hi-res CMYK TIFF (2,800-x-2,100 pixels) plus RGB TIFF and CMYK five-file EPS (1,400-x-1,050 pixels) images, the latter being used as placed artwork for the FreeHand and Illustrator vector overlays. Open any of the three Photoshop images and you'll find each area of the map carefully created as a path – every country outline, border, lake, water mass and all outlined texts. This opens up various possibilities, from colourizing selected areas to creating semi-transparent overlays, vignettes, drop-shadows and creative-colour effects. The 30-page PDF manual shows how to achieve many of these.

Unfortunately, the explanatory images are from an old version of Photoshop – and the screen images are so low-resolution that you can't zoom in to see any of the details. Still, they work with a little perseverance.

Open up the Illustrator file, and you're presented with the placed five-file EPS, plus all manner of layers for texts, borders, and country outlines. Turn off the ones you don't want to see and print – easy enough. But that's not the way most people work. Designers tend to bring EPS files into QuarkXPress as part of a layout and then print from there – in fact, very few people ever print direct from Illustrator. And only single-file

placed EPSs will print from XPress, not the five-file variety.

A small point possibly, but one that needs to be considered before printing. AI Interactive now has some info on its Web site concerning this.

Macworld's buying advice
Aside from the minor gripes, this is a thoroughly professional package with images of the highest quality. Presentation is good throughout, from the laminated Quick Reference card to the neat, labelled double-CD boxes. Map-makers, or anyone else who needs to incorporate maps within a design, should certainly check out Terra Forma Worldwide.
Vic Lennard

Quality set of world maps

Terra Forma Worldwide 3.0
Publisher: AI Interactive (01235 529 595)
www.terra-forma.co.uk
Pros: Wide range of Photoshop paths; Illustrator/FreeHand vector overlays.
Cons: Some work needed to print from QuarkXPress.
Price: £295 (including VAT)
Star Rating: ★★★★/7.9

Ten years ago we were promised that the future held fully immersive 3D-cyberspace. Virtual was the buzz-word of early 90s, but it quickly became more diluted than the Titanic.

The ProFormance III and ProCyber 3D bundle comes closer to VR than anything before. It offers a binocular 3D view in games and 3D-modelling software.

The magic is all down to the LCD glasses that create the 3D effect. Each lens is actually a tiny LCD panel – not a sophisticated one, it just acts like a shutter with a clear or black option. Each eye is blacked out in turn at a rate set by the video card. For example, if a monitor is running at 120MHz the shutters will show each eye 60 frames per second. Each eye then sees the scene from a slightly different angle and presto, 3D vision.

The glasses are controlled by an infra-red transmitter that is mounted on top of the monitor. There is a receiver on the

glasses, so that the signal can switch the shuttered lenses on and off at the correct moment. The effect is astounding. If you are already wearing glasses the 3D ones will fit over the top in most cases. Though if you favour the Elton John-style of eyewear, there could be a problem.

Fully immersive
Although the glasses are, in theory, compatible with a number of 3D modelling packages, gaming is the most obvious application for them. If a game uses OpenGL it should be no big deal to add a 3D option. Games that have this feature include the latest versions of Quake, Unreal and Descent. Having tried them, I would say Descent III has the best implementation of 3D effects.

A quick straw poll of colleagues proved that this is a technology that'll amaze and intrigue your friends. Also, I was pleasantly surprised at the price: the 16MB video-card version comes in at £199.This may seem expensive, but the card has uses beyond 3D gaming. Its performance is very impressive in all applications, and it's probably worth the £200 – without the glasses.

Virtual game-play

ProFormance III ProCyber 3D
Manufacturer: Formac (020 8533 4040)
www.formac.co.uk
Pros: It adds a new dimension to first-person shoot'em ups, and some 3D modelling packages.
Cons: Not all 3D games support this feature yet, but new ones are likely to; doesn't support LCD monitors.
Price: 16MB version, £199; 32MB version, £249; ProCyber 3D glasses, £59 (all prices include VAT).
Star Rating: ★★★★★/9.0

Macworld's buying advice
Even part-time gamers should be able to slip this bundle through the budget because of the high-end performance of the card. It's at its best with a monitor boasting high refresh-rates – although we tested it at only 80MHz and it was fine. LCD displays will not work though, because of slow refresh rates.
David Fanning

Mac OS 9 support for anti-virus utility

Virex 6.1

Publisher: McAfee www.mcafee.com
Distributor: Network Associates (01753 217500)
Pros: Supports Mac OS 9's multiple users; uses Navigation Services for dialogue boxes.
Cons: Use of two passwords is confusing.
Price: £49 (including VAT); free upgrade for registered users.
Star Rating: ★★★★/7.5

No problem
Support for Apple's Navigation Services makes Virex's dialogue boxes easier to use.

When you want protection against virus attacks on the Mac, you need look no further than Virex or Norton AntiVirus – there is little to choose between them (see Reviews, December 1999). Each is updated monthly, and functionality is similar.

So, what does version 6.1 of Virex bring to the party? Primarily, it brings full support for Mac OS 9, including a new way of allowing multiple users. This lets designers share a computer with separate settings for each person – different user interface parameters, different control panels, and so on.

Right on time

The scheduling system – completely revamped in Virex 6.0 – can now be utilized in this way. Individual users can set up their own schedules that come into operation as they log on, scanning special folders or disks according to the scheduled timings. The system owner has the additional ability to schedule updates and system-wide scans that take place irrespective of who is logged in.

Virex now uses Navigation Services for dialogue boxes. These were introduced with Mac OS 8.5 as a replacement for the traditional open-&-save as dialogues. They allow direct access to the Favourites menu and recently used items. Not many applications use them, which is a shame. A hard disk can be searched for a particular folder, that can then be dragged-&-dropped on to the dialogue box to move straight to it.

Safe and sound

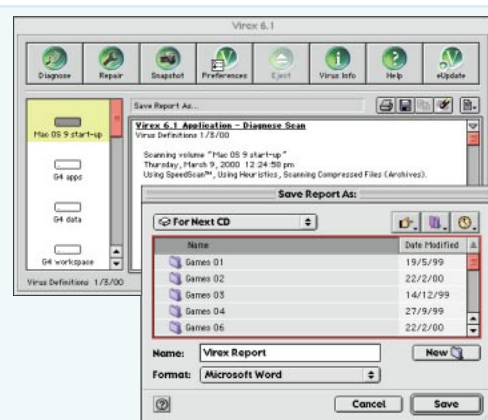Security has been improved. A password can be set to prevent the Virex preferences from being opened after configuration, and there's an option to stop someone from aborting an action or opening the schedule editor – essential when using the multiple users facility. It's a bit confusing though, as there's already a security part to the Control Panel preferences, with its own password to prevent the Control Panel from being opened. One program, two passwords.

Finally, the Control Panel, main application and scheduler can now be opened individually.

Macworld's buying advice

In terms of performance, Virex 6.1 is a little faster than its predecessor. For the start-up disk (3,700 files) on a Power Mac 8500 with G3 processor card, Virex 6.0 scan/rescan times were 913 and 39 seconds respectively; with Virex 6.1 this dropped to 850 and 38 seconds, over a minute quicker for the first scan.

While none of the additional functionality places Virex 6.1 above Norton AntiVirus in terms of its anti-virus capabilities, it works reliably with, and offers full support for, Mac OS 9. As such, it can be recommended.
Vic Lennard

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iMac-to-TV connectivity

iTView

Publisher: Focus enhancements www.focusinfo.com
Distributor: AM Micro (01392 426 473)
Pros: iMovies can be liberated from iMacs on to videotape.
Cons: Many suggested uses are impractical; need to buy an RF modulator for older TVs; non-DV iMac owners have to pay an extra £40 for a VGA adaptor.
Price: iTView DV, £129 (including VAT)
Star Rating: ★★/4.9

The iTView is a multi-function product pitched at both business and home iMac and iMac DV users. This PC-to-TV video-conversion tool is being touted as a workplace saviour, enabling computer presentations to be displayed on larger-screen TVs. The palm-sized device connects an iMac DV or iMac DV SE to a TV, or to a TV-video combination. The non-DV version is an extra £40, as it includes a VGA adaptor.

First things first. I couldn't get a picture worth the name on my TV. All I got was a ghosted and reversed-out image of my desktop on the TV screen.

The iTView comes with three types of cabling – S-Video, a high-quality standard; composite; and SCART – my telly has none of them. *(Time to buy a new TV – Ed.)* The broken-up image I did get was achieved by connecting the TV to the iTView via the VCR, using the SCART cable (the video-connection standard in Europe).

I was told by Focus that, because my TV was old, I needed to buy an RF (radio frequency) modulator (£25; Maplins, 0181 555 6254). If I'd bought the iTView, this would have sent me into a fury. It's worth checking your TV before buying.

As for picture quality, I can only refer to iTView's specs: it supports 640-x-480 pixels to 1,024-x-768 pixels at frequencies up to 152Hz.

Macworld's buying advice

How iTView can be much use for work or school presentations is lost on me. An image on a 29-inch TV won't be that informative if you're at the back of a room. Projectors are the logical solution.

As for using the iTView to Web-surf or play games on the TV I failed to see the attraction – literally. Where's the convenience in lumping an iMac through the house to your TV and setting up a nest of cabling? Serious surfers and gamers may feel differently.

If you're desperate to transfer iMovies to video tape then you will need iTView – as long as you don't mind subsidizing its other overblown functions.
Sean Ashcroft
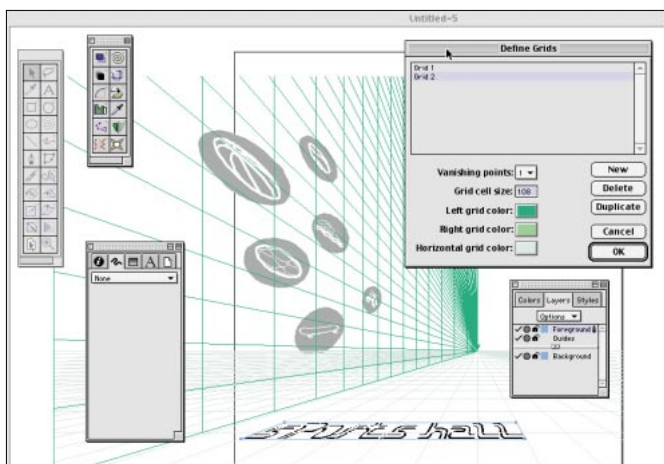
Grid lock
The new perspective feature opens up new creative possibilities, but is quite difficult to use, especially with a large number of objects set in the planes.

The field of illustration software is unique in that two products, Macromedia FreeHand and Adobe Illustrator, share the market almost equally, with CorelDRAW and Deneba Canvas bringing up the rear. That two products compete on such even terms has created a situation where Illustrator and FreeHand are upgraded on an almost tit-for-tat basis, and it's no coincidence that Adobe Illustrator 9 will follow hot on the heels of FreeHand 9. Or is it the other way around?

Because of this competitive release schedule, a new version doesn't always merit the tag. Such criticism might be levelled at FreeHand. However, Macromedia has probably done just about enough to justify the new release, and while many users will find little new of interest, this is a testament to the essential quality of the program.

The studio bundles Flash 4 and FreeHand 9 with the woeful Insta-HTML that made up the numbers in the FreeHand 8 studio. This is now incorporated as part of the obligatory Publish as HTML command in FreeHand – and it's still as useless as it was before. Flash 4 has been well covered before (August 1999), so I'll focus on the new features in FreeHand 9.

Keep it perspective

First, and most obvious – in fact, the only one that makes it onto the box art – is the perspective grids feature. While grids have traditionally always sat in the same plane as the drawing, FreeHand 9 allows you to define 1, 2 or 3 dimensional perspective grids. Vanishing points (VPs) can be controlled by manipulating the grid, as well as the setting of the horizon line.

The perspective grid can by used as a spatializing guide for objects that sit in the same plane as the drawing, or to attach objects to the grid to make them part of the perspective. It's a great way to add depth to an image, and if you have ever had to create your own perspective guides, a great timesaver and aid to accuracy.

Because the VPs and horizon can be changed, any elements attached to the grid will also change accordingly – allowing greater flexibility, as well as accuracy, than the manual guidelines approach. But attaching objects to the grid is a pain, and scaling them within the grid more so, requiring use of the keyboard as well as the mouse. It's not a great example of interface design, and I'm sure a more elegant solution could have been found. Another minor gripe is that the horizon line is always firmly fixed on the horizontal, preventing more dynamic viewpoints.

Other new illustration features include a lasso tool, to aid selection of points, and

In a flash
The new Flash export offers a much greater range of features, with control over text handling, animation, and the ability to protect from import.

an improved trace tool that, Macromedia claims, is twice as fast and more accurate than the trace facility of FH8.

Macromedia is so proud of the spiral tool that it has moved it to the main toolbar. Blends have been improved to offer a greater range of objects that can be blended, including composite paths and groups.

The other most important new features relate to FreeHand's capability as an all-round document layout program. The new page tool makes it easier to add pages and manipulate elements on the pasteboard, and multiple pages are displayed at the same time. Furthermore, the new symbols library, with a symbols and instances concept similar to Flash, allows common elements to be used across pages and documents easily. Elements can also be dynamically updated – a very powerful feature. Add the export-as-PDF feature, and FreeHand is a superb page layout tool. I'm so narked by Quark and disappointed in InDesign that I'm intending to use FreeHand from now on.

The Flash integration features have been improved greatly in this new release, and you can preview a document in Flash Anti-alias mode. The enhanced Export as Flash feature offers a similar range of options as the Export facility in Flash. And, it includes options to determine how elements, such as text and layers, will be handled. However, there is still no ability to export from FreeHand as native Flash (.FLA) format, or import native FreeHand (.FH9) format into Flash. It would be great to be able to maintain FreeHand layers and symbols in Flash.

Macworld's Buying Advice

FreeHand 9 is not the giant leap a whole new version would suggest. There are a lot of minor, but needed, enhancements and new features. These add up a to a good upgrade, and for new users, the best program of its kind. But, FreeHand can go further. Closer Flash integration and better Web publishing are surely within Macromedia's capabilities.
Martin Gittins
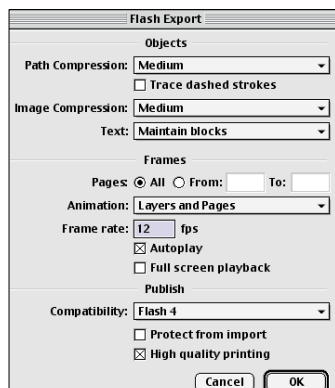
Changing drum loops and the BPM (beats per minute) with Pro Tools has always been tricky. In fact, using a sampler was usually easier – until now. That's because Audio Genetics has released Alkali Loop Laboratory.

Alkali is a Pro Tools plug-in that allows the tempo of a loop in REX format to be changed without pitch-shifting or time-stretching. It also has a variable-speed control that alters the pitch without changing the tempo.

You can also apply quantization to tighten up the beats and apply a "swing" amount. Alkali works well with both drum and bassline loops, allowing the correct tempo and key to be selected with the drag of a slider.

Alkali also supports Digidesign's Direct Connect technology, so the audio can be previewed within ProTools while the application is running – perfect for trying new loops against an existing Pro Tools groove.

Once you are happy with your loop, Alkali renders this to an SDII file that can be loaded into Pro Tools. Although REX files are normally created using Steinberg's ReCycle package, a number of similar files can be created in Pro Tools

using the SDII format. The only other software that uses REX files is Cubase Audio – but now Alkali lets Pro Tools users take advantage of the technology.

I opened a drum loop in Alkali, dropped the pitch of the loop by five per cent to make the snare drum sound fatter, then dropped the tempo from 117 to 115 BPM. The second bass-drum beat was not accurately in time, so I quantized to 16th notes at a strength of 65 per cent. This pulled the beats in time without making the loop sound too stiff – and that was that. The new loop for my track was at just the right tempo with a tighter bass drum, and a much fatter snare than the original.

Macworld's buying advice
A simple but effective user-interface, combined with an insight into the needs of anyone working with audio loops has produced one of the most useful musical tools around. At just under £200, Alkali will be an essential purchase for Pro Tools users working with loops, and will appeal strongly to users of ReCycle, Cubase and other MIDI+ audio software packages on the Mac.
Mike Collins
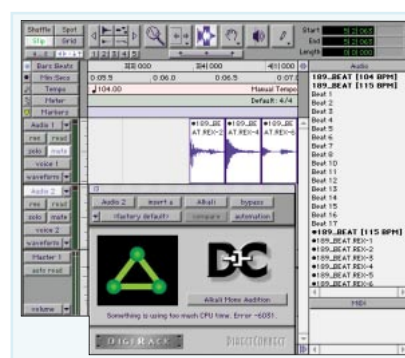
Base beats
The Alkali screen shows a drum loop that has been imported as a REX file. Adjustments were made to the tempo and pitch controls.

Some games look good – very good. Stunning high-resolution graphics, 24-bit colour, the lot. Some games have good gameplay, the kind that keeps you coming back for more. But few games have both, especially at less than £20. Goofy Golf Deluxe does – in spades.

Goofy Golf is the successor to GopherGolf, which never quite delivered in terms of looks or gameplay. Squeegee Software has taken the idea of crazy golf, added a lavish spoonful of plasticine-like imagery that would be more at home in a *Wallace & Gromit* animation, some great sounds and has come up with a real gem.

Each of the three standard courses – Blue Monster, Forest Badlands and

Pebbley Beach – boasts 18 holes, and is viewed from a top-down perspective. If you've tried the demo (on this months CD), you'll know the standard course elements. Some help guide the ball, such as pipes, wooden bridges and plastic slides. Others may help, but are equally likely to hinder. For instance, most holes have sloping parts, shown by differing shades of green, that may angle the ball around corners, or be so steep as to make a decent shot pretty well impossible. Hitting pinball bumpers places the final position of your ball in the lap of the gods.

Of course, some elements exist with only one intention – to make life difficult. Frogs with sticky tongues that stop your ball dead in its tracks, or pull it to one side, windmills that require spot-on timing, water traps with a one-shot penalty, sand traps, spring-loaded boxing gloves, and the ultimate – a fire-breathing dragon that fries your ball to a crisp and has you starting the hole again.

The laws of science don't hold either. Go down a green hole and your ball may emerge randomly from one of three green pipes elsewhere.

Included as standard is a course editor with a basic

HTML-format manual. It's easy to work with – even my 12-year-old son has created an 18-hole course – and the resulting custom courses can be loaded up. Unfortunately, some of the holes tend to crash the game or lead to impossible situations, such as balls flying over walls rather than bouncing off them. Still, connect to www.squeegeesoftware.com/pages/files/ggdcourses.shtml and you'll find over 50, 18-hole courses that are freely downloadable.

Macworld's buying advice
Goofy Golf Deluxe is one slick game, from the mouse-driven user interface, through to the highly colourful 16-bit graphics. It's fun to play for up to four Goofy Golfers and is highly addictive.
Vic Lennard

Done to a tee
With my golf ball severely toasted by our green friend with the bad breath, it's time to tee off again.

Mid-range CAD package

Microspot MacDraft 4.4

Publisher: Microspot (01622 687 771)
Pros: Simple and accurate drafting tool.
Cons: Poor user interface; buried functionality; no 3D capability.
Price: £199 including VAT; upgrade from version 4, £59.
Star Rating: ★★★/5.7

Not all there
Managing layers is the key to any CAD drawing – MacDraft's implementation leaves much to be desired.

Most CAD programs fall into one of two camps: either a precise drafting tool aimed specifically at the draftsman or architect creating plans and working drawings; or a simpler tool, oriented more towards the lay person needing to plan room layouts, technical diagrams and the like.

The former is concerned with materials, dimensioning, and using proper symbols. The latter is more concerned with easy drawing tools, labelling, and symbol libraries.

MacDraft is a curious program that contains aspects of both, but falls between two stalls, in failing to satisfy either audience. While it features a full range of prec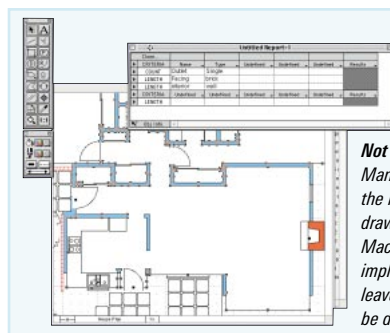ise drafting tools, a primitive report feature and much else of worth, I cannot see how professionals will welcome it. Neither is it user friendly enough for general usage, such as space planning.

As well as accurate drafting tools, all half-decent CAD software should have layers, dimensioning, scales and symbols. MacDraft has all of these, but the user interface leaves much to be desired with many palettes hidden by default. The addition of a top-row info bar and layer selector could save MacDraft users hours of time. The layer palette, especially, makes hard work of adding, locking and hiding layers.

As with most CAD programs, MacDraft allows you to define shapes and groups as objects, that can then be assigned properties. This then allows you to create reports of objects used in the drawing – for instance the length of wall of a certain type, or the number of desks in a room layout. But again, this feature is poorly executed and needlessly complex.

Macworld's buying advice
With support for common CAD formats, such as DXF and DWG, as well as bitmap graphics formats, such as PCT and Photoshop, MacDraft is a versatile and flexible tool. But it lacks the depth of features and useability of a professional CAD tool – for example Vector Works, or a more general illustration tools such as FreeHand.
Martin Gittins

A history of multimedia

Dust or Magic

Publisher: Addison Wesley/ Pearson Education (020 7447 2000)
Pros: Makes multimedia artists think about the way they work.
Cons: Skips vital points; stuck in the past; lacks practical advice.
Price: £24.95
Star Rating: ★★★/5.5

Good, bad or indifferent
Dust or Magic focuses on the creative process, rather than the nuts and bolts of a producing a multimedia project.

Multimedia is a bizarre concept – one that means different things to different people. In the realm of computing, it generally means combining animation, video, music and text in some sort of interactive melting pot. The idea is that the whole will add up to more than the sum of the parts. However, as Bob Hughes discusses in this thought-provoking book, multimedia, and especially multimedia CD-ROMs, quickly degenerated from a Brave New World for art, to a mass of poor 'edutainment' titles, often called shovelware.

This book isn't a practical guide to learning leading-multimedia programs, but an investigation into the process of multimedia design.

Hughes covers a lot of ground, with plenty of metaphors, allegories and examples to illustrate his points – all of which make it a book that you can dip into and out of easily. Discerning a central thesis or methodology is harder work, with limited practical advice on how to apply the insights and pearls of wisdom. Many of his ideas can also be found in such key works as Brenda Laurel's *Computers as Theatre*.

Stuck in the 1990s
Hughes' core knowledge of multimedia seems stuck around about the early 90s when discs from Voyager, Broderbund and Dorling Kindersley set the standards. Does anyone here remember Critical Mass, PAWS, A Journey through Art, or the woeful Microsoft-effort Explorapedia, let alone MacJesus or the Hypercard-driven Expanded Books?

There is little or no mention of the Web as a format for multimedia, or DVD – never mind diverse phenomenon such as Lara Croft, Starship Titanic or The Palace.

There's an extremely restricted definition of multimedia which Hughes is applying. Hughes sees the creative possibilities for multimedia as a deeply personal means of expression, which he connects to 'peasant' crafts, William Morris' Arts and Crafts movement, and a deeply flawed agrarian Utopia Hughes calls Cyberia, to set against a notion of industrialized multimedia – Microsoft – Hughes holds responsible for the dumbing down of the medium.
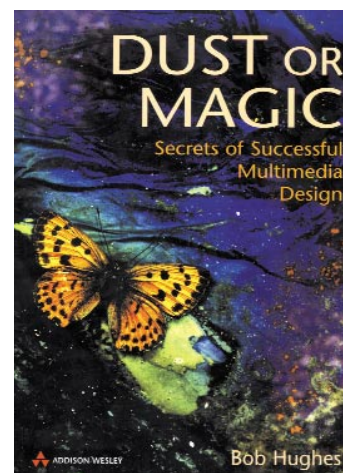
Macworld's buying advice
While I might disagree with many of the author's philosophies, it does encourage one to think more deeply about the work we do, and offers new ways to conceptualise the creative process.
Martin Gittins

SCSI card round-up

A while back, Steve Jobs announced what many thought was the death of SCSI on the Mac. Although out of favour with the Apple mandarins, SCSI lives on – and actually goes from strength to strength.

Now that it's not a pre-installed logic-board resident, SCSI capabilities are sought-after by a range of users. Some want to retain compatibility with older peripherals, some users want the fastest data-transfer rates available, and others need super-safe RAID arrays to ensure data security. We took a look at what is out there for SCSI-less Macs.

The first implementation of SCSI found on the Mac was SCSI 1. It was capable of data-transfer rates of around 5MBps, compared with 160MBps in modern high-end SCSI cards. It was introduced in 1985, making it one of the longest lasting interfaces around and giving it great compatibility advantages.

Old and new

If you simply want to stay in contact with old SCSI devices a cheap SCSI card will do. Any SCSI card will do the job, though having the right cables is always important. It's likely that if you're connecting old SCSI equipment there's probably a bag full of old cables lurking somewhere near your computer.

Formac offers an ideal solution for old-&-new connectivity – the Pro Raid Lite. It's a fast-SCSI card with an adaptor to let it connect to old 50-pin SCSI cables. If you get a faster SCSI device, simply get a new cable. The other exciting thing to note is it costs under £50, rather than the £250 for other Ultra SCSI cards.

At the other end of the scale, Ultra3 SCSI offers super-quick data transfer. A subset of Ultra3 SCSI is also known as Ultra160. Both offer 160MBps throughput. The Atto ExpressPCI Ultra3

card was the fastest we looked at, with a massive 160Mbps per channel, and it has two channels totalling 320MBps – more than enough for most people.

If high-end video production or music is your game, a fast drive and SCSI card are important. However, there is a basic rule of thumb: don't get a card that's faster than the drive needs, unless you're using an array. A drive capable of 40MBps will get no benefit from an Ultra160 card beyond its normal 40MBps. Drives rarely perform at the optimum quoted speed.

Don't let this put you off fast cards, because faster speeds are possible using a RAID set-up. To use RAID there must be at least two drives, preferably more. There are various types of RAID set-up, but they fall into two main categories – RAID for speed or RAID for secure data. At its most basic, RAID 0 (for secure data) is simply two drives that are mirrored. Every time something is saved to disk, it's automatically saved on the second disk too. If a drive fails there is always a back-up available.

For the fastest speeds available, choose RAID 1. This uses two or more drives in unison to act as a single drive. As the data is recorded it's directed to the drives in turn, so that no single drive has too much data to handle, which can cause a bottleneck. It also means that slower drives can be used to achieve fast data transfer.

Other RAID configurations are possible, but are more specialized and often need special hardware controllers. These combine the safety of RAID 0 and the speed of RAID 1, but need as many as four drives to work. They are available from specialist storage companies, such as Micronet (www.micronet.com, or ring United Digital, 01926 810 000).

The company that offers the widest choice of cards is Adaptec. We looked at

only three of the cards. Adaptec supplies clear and easy-to-understand manuals, and usually the correct internal cables – though it's worth checking if the cables are correct for your drive. Adaptec's Ultra160 card lacks some of the features of the Atto Ultra3 card, but the differences are minimal.

We tested two Atto cards. Both feature ADS technology, which Atto claims reduces the amount of bandwidth needed to transfer data. The fastest card on test was the dual-channel Ultra3 card, with 320MBps theoretical throughput – but few people would use that kind of bandwidth. At almost £455, I was disappointed at the lack of cables and the skimpy manual.

The bargains of the bunch were the Formac cards. Both the Pro RAID (£59) and the Pro RAID Lite (£45) offer 40MBps. The difference being that the Lite version comes with a 50-pin SCSI adaptor for connecting to older SCSI devices and the Pro comes with internal cables.

Macworld's buying advice

For compatibility with older SCSI devices, the £45 Formac ProRAID Lite is unbeatable for the price. If you get faster SCSI devices it will still be compatible.

Adaptec has the widest choice of cards, so there's more chance of getting the exact version of SCSI protocol to match the drive. The Adaptec range is also well supported with manuals.

Atto had the fastest cards, but they the least well supported with cables and documentation.

The card to buy should be determined by the device to be driven. A fast drive needs a fast card, but with top-of-the-range of SCSI cards, few drives are capable of filling the bandwidth. Choose the best card for your drive or scanner.
David Fanning

SCSI logic

MANUFACTURER	MODEL	STAR RATING	MBPS	PRICE	CONTACT	TELEPHONE	WEB
Adaptec	39160	★★★★/7.2	160	£349	Adaptec	01276 854 500	www.adaptec.com
Adaptec	2930u	★★★/6.7	20	£69	Adaptec	01276 854 500	www.adaptec.com
Adaptec	2906	★★★/6.8	10	£44	Adaptec	01276 854 500	www.adaptec.com
ATTO Technologies	EPCI-UL2S	★★★/6.6	80	£285	United Digital	01926 810 000	www.attotech.com
ATTO Technologies	UL3D	★★★★/7.2	160-x-2	£455	United Digital	01926 810 000	www.attotech.com
Formac	Pro Raid II	★★★★/8.5	40-x-2	£89	Formac	020 8533 4040	www.formac.co.uk
Formac	Pro Raid I	★★★/6.7	40	£59	Formac	020 8533 4040	www.formac.co.uk
Formac	Pro Raid Lite	★★★★/8.6	40	£45	Formac	020 8533 4040	www.formac.co.uk

All prices include VAT.

Meeting card
Adaptec's SCSI card is one of the fastest we tested, and, like all Adaptec cards, it's well supported.

Fashioning fabulous flicks

A digital-film revolution is in the making. By David Fanning and Ben Long

We're in the midst of a revolution, and this one will definitely be televised. Long established at the high end, consumer-level desktop video has been a long time coming – but it's finally here. And just as scanners and laser printers propelled desktop publishing, digital video cameras make videotaping easier and editing your footage more affordable.

Whether your goal is to immortalize your kid's school play or to shoot a feature-length movie, à la *The Blair Witch Project*, a digital video camera will yield far better footage than you could ever get with a consumer-grade analogue camcorder. With 500 lines of horizontal resolution, DV formats have twice the resolution of VHS and 8mm film's 250 lines – and 25 per cent more than Hi-8's 400 lines. In addition, DV provides much better colour fidelity with far less colour bleeding and noise than traditional analogue consumer formats. Best of all, some of these new camcorders now cost just over £1,000 and sport interfaces that make it easy to get your footage onto your Mac, where you can edit and enhance it.

How it works

The problem with video is it takes up a lot of room – a single minute of video contains about 210MB of data. And anyone who's ever duplicated a file on a Mac knows that the average computer can't move huge amounts of data around quickly.

DV lowdown In the past, if you wanted to work with video on your Macintosh, you had to get specialized – and expensive – hardware that not only took care of digitizing a video signal, but could also compress it for storage on a very fast hard-drive array.

Not so with a DV camera: unlike a traditional analogue camera, it doesn't store an analogue signal on tape. Rather, a DV camera digitizes and compresses a video signal and stores a digital stream on tape, in a process similar to writing a computer file to a tape drive.

With all of the compression hardware in the camera rather than on a special video card, you need only a speedy processor, a good-size hard drive, and a FireWire interface. The speedy interface known to Mac users as FireWire (technically IEEE 1394, and I.Link in Sony's nomenclature) is now standard on most desktop Macs. This previously missing link makes it possible to move video into and out of your Mac without expensive digitizing hardware.

Types of tapes The most popular DV format for less expensive cameras is MiniDV. Although the MiniDV, DV, DVCam, and DVCPro formats all provide the same image quality, MiniDV tapes and hardware are usually much cheaper.

For users who already have an investment in 8mm or Hi8 equipment, Sony produces a proprietary Digital8 format that, in addition to recording in a new digital format, can play back regular 8mm and Hi8 tapes. Though this is a great way to edit older tapes using your Mac, the Digital8 tapes have slightly lower-resolution video than DV.

The eyes have it As in a digital-still camera, the lens in a DV camera focuses

JVC GR-DVL9800

This is more than just a video camera: it also attempts to be a digital still camera. Although this may sound like a plus, the reality is, it spreads itself too thinly across the two functions, meaning it has fewer features then a more "focused" camera. However, there are still enough features to amuse.

On the stills side, there's a flash that pops up when needed, making for better images than with most other video/still models. Images are stored on a multimedia card, though 4MB doesn't get go very far nowadays. There are higher capacity cards available, but CompactFlash or SmartMedia would is our preferred choice of media card.

The video capabilities are limited for Macintosh users, as the software and interface are designed for use on PCs. There is PC-compatible editing software and a printer port for printing directly to a printer. There's DV in/out so FireWire-capable Macs will still be able to use it with iMovie, Final Cut Pro or other editing software. It has a tendency to over-sharpen images.

Macworld buying advice

A jack of all trades is fine if multi-functionality is what's needed, However, you may be better off buying a digital still camera and a more focused DV camera. The quality is acceptable, but it can't compete with the Sony or Canon.

Panasonic NVDS35B

This pocket-sized Panasonic is almost as small as the Sony model. Like many of the other cameras tested, it has a still-picture mode, but lacks any removable media for still images.

The case is mostly brushed aluminium, except for the right-hand side, which is smeared with a rough protective plastic, to prevent the camera slipping out of your hand. I don't know if it makes much difference, but I do know it makes the camera less attractive.

The viewfinder is modestly sized, but does give an extremely sharp and crisp image. You can access the output through the FireWire port, of course and, although there's no S-Video on-board, you can actually use S-video, thanks to an ingenious docking station that comes with the extra connections. This helps keep the camera lightweight and compact.

The zoom is quoted as being 150x, but this is mostly a digital zoom. The quality at this level of zoom is poor, and unless you have a tripod, it will be too shaky to use.

Macworld buying advice

This isn't a bad camera, but it offers less than all the other models tested. Image quality is fine, as long as you don't use the digital zoom. A good all-rounder but not a class-topper.

Sharp VL-SD20

The Sharp is an odd beast – a hinge in its middle makes the LCD display part of the casing. This means that the tape is housed in one half of the camera and the battery in the other, along with the lens. Although unusual, this isn't a bad way of arranging things.

Of all the cameras tested this one was the easiest to use without recourse to instructions or tinkering. Its controls are clearly marked and the only part that demanded some research was finding the DV port – which is hidden between the two halves of the camera, which have to be twisted in the right way to gain access to the port.

There's also an S-Video port for playing directly to TV or VCR. Remember, though, not all televisions and VCRs have S-Video. If you're unsure, look for an S-Video port – it looks like an ADB port, for those of you who remember the old keyboard connection. In fact, you can even use an ADB keyboard cable for S-Video.

Macworld buying advice

This is not the most sophisticated camera tested, yet simplicity can be a good thing, as even a child could use this camera. It's also the cheapest tested, so a child could also use it without you being on sentry duty. The results were good, even if the unusual construction is an acquired taste.

Canon XL1

This camera has something of a cult following. Its form-factor has been around for a while, and it is has evolved gradually.

The various components – lens, body microphone and so on – can be individually upgraded. This means that once you've shelled out an-admittedly hefty £3,000, its easy to keep up with technology as new components are developed.

The size of this model dwarfs the others in this round-up, as does its price. However, this is a less of a "pro-sumer" camera and more of a budget professional camera. This status is determined not just by its high-end specifications but by its professional appearance too. Owning the Canon XL1 and a lower-end camera is the difference between owning a movie camera and being on a film crew.

The Canon XL1 doesn't have a LCD viewing screen, but this is because there is a 76mm eyepiece viewfinder – better in bright sunlight than the LCD view panels on other cameras.

Macworld buying advice

What you're paying for with the XL1 is image quality, pro features and its component-upgrade path. If you don't make a living from shooting video, this camera is undoubtedly overkill – and it's more than enough for wedding videos.

Manufacturer	JVC	Panasonic	Sharp	Canon
Model	GR-DVL9800	NVDS35B	VL-SD20	XL1
Price	£1,400 (inc. VAT)	£1,100 (inc. VAT)	£850 (inc. VAT)	£3,000 (inc. VAT)
Zoom/digital zoom	10x optical/200x digital	15x optical/150x digital	10x optical/100x digital	16x optical (with standard lens)
LCD monitor size (mm)	88	63.5	76	N/A
Battery life	70 min	65 min	105 min	90 min
I/O connections	DV in/out, S-video	iLink (DV in/out), S-video	DV in/out, S-video	DV in/out, S-video
Image stabilization	Digital	None	None	Optical
Contact	Direktek	Panasonic	Sharp	Canon
Telephone	01494 471 100	0990 357 357	0800 262 958	0500 246 246
URL	www.jvc.co.uk	www.panasonic.co.uk	www.sharp.co.uk	www.canon.co.uk
Star Rating	★★★★/7.5	★★★★/7.8	★★★★/7.9	★★★★/8.6

Let's split
Ejecting the tape from the Sharp VL-SD20 means having to split the case in two.

light onto a charge-coupled device (CCD), a grid of light-sensing electrodes that acts as the camera's eye. CCD size has much to do with the sharpness of your final image.

Quality counts

No matter what you choose to buy, the high resolution of the DV specification ensures image quality that would have been unaffordable just a few years ago. As with any type of camera, final image quality depends largely on the quality of the optics. In other words, a DV camera with a better lens will do a better job of focusing an image onto the camera's sensor.

Through the looking glass Sony and Canon both equip their cameras with high-quality lenses, which produce excellent detail and sharpness. All digital cameras apply sharpening to their images, just as you might apply sharpening to a picture in an image-editing program. Although sharpening can greatly improve image detail, it can also have some unfortunate side-effects. For example, over-sharpening images gives lines with jagged edges or, in some cases, lines that appear to flicker and blink. At the other end of the scale, cameras can produce slightly soft images.

Although all of the cameras had some colour quirks, in general they produced very good images. If you're used to shooting with an analogue video format, the DV format's ability to show bright colours without bleeding or blurring will surprise you. And with the format's higher resolution, a DV camera produces better detail than its analogue predecessors – although annoying artifacts from sharpening do occur.

Come in closer

If you enjoy nature or sports photography, you know getting closer to what's going on isn't always easy – that's where the zoom lens comes in handy.

The better to see you with As with the analogue video cameras of old, all of the DV cameras we looked at have built-in zoom lenses that let you zoom between wide-angle and telephoto views of your action. Unless this feature is critical to your work, don't hold out for a more powerful zoom – it's more important to choose a camera with good image quality.

Zooming in Most of these cameras offer a digital zoom feature in addition to their optical zoom. With this option activated, the camera digitally enlarges your image once you've passed the optical zoom limit of your lens. Just as zooming in on a picture in an image-editing program shows you a blocky, pixelated mosaic, digital zoom increases jagged lines and distortion and can turn your image into a grid of large, distorted colour blocks.

Models with huge digital zoom numbers will turn the family cat into an unrecognizable grid of pixels. Unless you're deliberately trying to achieve a grungy, stylized look, avoid using digital zoom and don't let a salesperson sell you a camera based on this feature.

The bottom line None of the cameras we tested provides flawless images. Overall, they do produce very good images – meaning that once you've decided which quality trade-offs you can live with, you can base the rest of your buying decision on the camera's features.

Fantastic features

From wacky special effects to image stabilization, today's DV cameras are feature packed. Although you may find the nifty 'old-movie effect' on one camera tempting, you need to concentrate on the most essential features.

In the palm of your hand DV cameras come in a number of shapes and sizes, and one of your first considerations

Outside Europe, mini digital video (DV) cameras have input and output as standard. Unfortunately, due to some Eurocratic nonsense, such cameras are classed as VCRs. For some unfathomable reason, this means that they're liable to an additional five per cent import duty in the UK.

The problem is that, rather than taking it on the chin and paying this import duty, most manufacturers have opted to dodge it – by disabling the DV-input feature. This leaves you with no way to output DV from your iMac back onto DV tape. The other thing that makes this even more infuriating is that most high-street retailers tend to favour the lowest priced models, and these lack DV-in. For the unsuspecting, uninformed

punter, this can end in bitter disappointment, as captured digital images remain "trapped" on a Mac, with no way of transferring them to video tape. All this makes locating a DV in/out camera mightily difficult. Specialist camera shops – such as Jessops – are able to order them, and the Sony models are available at some Dixons outlets. Camelot carries the Canon range and Computer Warehouse has a whole DV subsidiary – Digital Warehouse. The best way of finding suppliers is to call the listed numbers of the companies. They cost around £100.

If you already have a camera that only supports DV-out you may have another option. Being digital by nature, the cameras have their setting in a kind

of flash memory. It's possible to access this flash memory and change the settings – from PAL to NTSC for example, or more usefully, to activate the DV-in capability. Specialist magazines and Web sites can tell you how but it is a complicated procedure.

A simpler solution is available from Computer Warehouse, and it's called a Widget. This is available for most cameras and works simply by plugging into the camera and switching the old ROM to a new ROM arrangement. Because this may void your warranty, you can reverse the process by plugging the Widget back in and repeating the process. Ingenious and simple.

All the cameras tested here include both DV in and out.

Widget wonder

editors' choice

Sony DCR-PC3E

The PC3E is the smallest camera tested, but it's chock-full of functionality. From digital still to night-vision modes it does all but make the tea. It features the Sony MemoryStick – a nice feature for grabbing stills without needing to hook-up DV cables. But Mac compatibility needs the soon-to-be-released USB card reader. The MemoryStick is a proprietary memory card along the lines of CompactFlash and SmartMedia cards. Image quality with stills is of a relatively low resolution when compared to a dedicated digital still camera, but its good for fun snaps.

The image quality of video is good, helped by the Carl Zeiss lens. Because it's such a minute camera, it can be difficult to hold steady – something that's remedied by a steady-shot feature to maintain image integrity.

Connectivity comprises an iLink port – Sony's name for FireWire – and an S-Video port. The S-Video is handy for playback directly to TV or VCR, and if you're buying your video camera before splashing out on a FireWire-equipped Mac, you'll still be able to perform basic editing.

One slick feature is the touch-sensitive LCD screen. It's much better having on-screen buttons than having them peppered across the case. Another nifty feature is the NightShot mode – should you want to film in darkness.

Macworld buying advice

Although the MemoryStick is useless for now, it'll be Mac-compatible soon. It will add an extra dimension to the camera. For such a small camera it's full-featured.

Canon XM1

The XM1 is ideal for those who think palm-corders are for wimps. It can sit atop a tripod without looking like a kid's party hat on a grown-up. It's also a high-quality three-CCD model. If a wedding photographer turned up with the Sony DCR-PC3E, the bride and groom may wonder if they're getting value for money. There'd be no danger of this with the chunky Canon: it looks and feels more expensive but is only slightly pricier than the rest of the models tested.

There are two things that set this camera apart as a semi-professional model. The lens is a high-quality Canon lens – of course – and images are captured on three CCDs. This means images are split by a prism, making for a noise-free and sharp picture. Large stereo microphones on the front of the carrying handle capture the audio.

The zoom is a mere 20x, which sounds wimpy compared to other models tested. The difference is that it's an optical zoom, not a poor-quality digital zoom. There's also an optical image stabilizer to steady images when the camera's off the tripod.

Macworld buying advice

If you harbour any ambitions for using your camera for paid work, this model is in the entry-level Professional bracket. It has high-end features on a budget.

The others may be capable of doing an adequate job, but if people are shelling out for images then they want to see something that inspires a bit of confidence. This is an exceptional quality-camera.

Manufacturer	Sony			Canon
Model	DCR-PC3E			XM1
Price	£1,200 (inc. VAT)			£1,350 (inc. VAT)
Zoom/digital zoom	10x optical/40x digital			20x optical / 100x digital
LCD monitor size (mm)	63.5			63.5
Battery life	55 min			60 min
I/O connections	DV in/out, S-video			DV in/out, S-video
Image stabilization	Optical			Optical
Contact	Sony			Canon
Telephone	0990 111 999			0500 246 246
URL	www.sony.co.uk			www.canon.co.uk
Star Rating	★★★★/8.8			★★★★/8.8

Stick or twist?
The Sony Memory Stick will be great – just as soon as Sony releases a Mac-compatible card.

should be the camera's ergonomics. If small size and maximum portability are important to you, take a close look at the Sony, the smallest camera we tested. Both the Canon models are bigger, more traditional shapes – better for tripod-based shooting, but not too heavy for carrying.

Steady going Though compactness is generally convenient, it can have a negative impact on shooting stable footage. The light weight of these camcorders can make smooth pans and steady shots hard to achieve. Although all include some sort of image stabilization feature, there's no substitute for a tripod – and some cameras are better suited to tripod use than others.

Dropping anchor To offset the difficulties of holding a one-pound camcorder steady, many vendors include either an electronic or an optical-image stabilization feature.

Electronic stabilization works by moving the image around digitally to compensate for shaking. If you shake the camera to the left, the camera moves the image in the other direction to keep the picture steady. Optical image stabilization uses special prisms, reshaped on-the-fly to redirect the light striking the CCD. This allows the camera to compensate for slight shaking – as opposed to intentional large movements.

In the past, electronic-stabilization features could adversely affect image quality. The camera's digital fiddling with your image data could sometimes create artifacts and weird motions. Now, electronic stabilization provides a more stable picture than before – without harming image quality. Optical stabilization, on the other hand, works by adjusting optics rather than by manipulating image data, so there's no concern that it will add strange artifacts to your footage.

Cause and effect Each camera offers a good assortment of special-effects features, such as sepia tones and mosaics, but the ergonomics, battery life, and viewfinder should weigh much more in your buying decision than esoteric features.

User friendly

Though DV video cameras are technologically sophisticated, you'll find using one no different from using an older analogue camcorder.

A view to a kill An important part of a DV camera is the colour display. Every model apart from the Canon has both a large, flip-out LCD viewfinder and a smaller eyepiece viewfinder. You're going to spend a lot of time looking at those tiny screens, so make sure your camera provides a sharp image that doesn't tire your eyes.

Manual adjustment The modern camcorder is a wonder of automated cinematography. With autofocus, auto-iris, and auto-white balance, you can just switch it on and start shooting. However, even the

best algorithms can't handle every situation, and manual control can be a lifesaver in a difficult situation – such as shooting against a bright window, or trying to capture fast action at a sporting event.

To make matters easier, your camera should provide manual control for focus, white balance, and exposure. Autofocus mechanisms base their settings on what's in the centre of the frame. This is fine if you always centre your subject, but if you want to be more creative, you're out of luck. Say, for example, you want to shoot a friend standing at the left of a frame, with the Eiffel Tower in the background. Because your friend isn't in the middle of the frame, the camera's autofocus mechanism will most likely focus on the distant tower, rendering your friend as a blur. With manual focus, you can be sure you've framed and focused the picture just as you wish. All cameras tested have manual focus.

The blink of an iris Nothing is more typical of bad video footage than that overexposed, washed-out look. But, most auto-iris mechanisms tend to expose things a little on the hot side – bright areas flare and bloom, and in those spots colour may actually bleed and blur. Outdoor conditions can exacerbate this problem, and none of the cameras we tested had auto-iris features that could handle a difficult backlit situation. Although Sony and Canon provide exposure presets, a manual exposure control is best for difficult situations.

Bright lights How a camera reproduces white varies greatly depending on the light conditions in which you are shooting. If the white balance of the camera is not set properly, all of the other colours will be off – usually they shift to red, blue, or green, making mum's bread pudding look like lime jelly. Although most cameras provide good auto-white balance controls, they're not always accurate in mixed lighting situations; for example, a fluorescent-lit room with daylight streaming through a window. All models provide manual white balance.

Fast action Manual shutter-speed control is a great tool for shooting fast action, such as little Johnny's Sunday park football games. At higher shutter speeds, the camera can stop fast-moving action, giving sharper detail in each frame. But, because high shutter speeds remove much motion blur, your video can look too sharp.

Macworld buying advice

The good news is that all these cameras offer quality far better than the typical analogue camcorders, so what you see will pleasantly surprise you. They're ideal for iMovie and Final Cut Pro movie-making. **MW**

Ben Long is a co-author of the forthcoming *Digital Filmmaking Handbook* (Charles River Media).

Plan your iMovies – tips & tricks

By Jim Heid

Making great movies takes more than great software, of course. First you need the right raw material. Some advance planning will help ensure that you have the money shots. And following some basic videography techniques will make for more-professional results. Planning means "developing an outline" – in Hollywood parlance, a storyboard – that lists the shots you'll need in order to tell your tale. Professional moviemakers storyboard every scene and camera angle. You don't have to go that far, but you will tell a better story if you plan some shots.

Consider beginning with an establishing shot that clues viewers in on where your story takes place: for example, a shot of the swimming pool.

To show the big picture, zoom out to your camcorder's wide-angle setting. From there, you might cut to a medium shot that introduces your movie's subject: little Bobby preparing to belly flop off the diving board. Next, you might cut away to Mary tossing the ball. Cut back to Bobby, and then finish with a long shot of the entire scene. And remember, you don't have to shoot every scene in chronological order – sequencing your shots is what iMovie is for. For example, shoot Mary's throw any time you like and edit it into the proper sequence using iMovie.

It's worth mentioning, by the way, that Avid's Cinema (£199; Avid, 01753 655 999) program provides a superb built-in storyboarding feature that helps you plan your scenes. The Avid Cinema manual also contains terrific tutorials on movie making.

Apple should consider adding goodies like these to future iMovie revisions; while iMovie is a terrific tool, it doesn't teach technique.

Also keep in mind that your subjects should move, not your camera. Nausea-inducing camera work is a common flaw of amateur videos.

Too many people mistake a video camera for a fire hose: they sweep across a scene, panning left and right and back again. Or they ceaselessly zoom in and zoom out, making viewers wonder whether they're coming or going.

A better practice is to stop recording, move to a different location or change your zoom setting, and then resume. Varied camera angles and zoom settings makes for a more interesting video. If you must pan – perhaps to capture a dramatic vista, or someone cycling or running – then do it slowly and steadily.

And vary shot lengths. Your movie will be more engaging visually if you do. Use longer shots for complex scenes, such as a wide shot of a city street, and shorter shots for close-ups or reaction shots. Mix and match them to give your film a balanced, considered feel. You'll be surprised at the difference it makes.
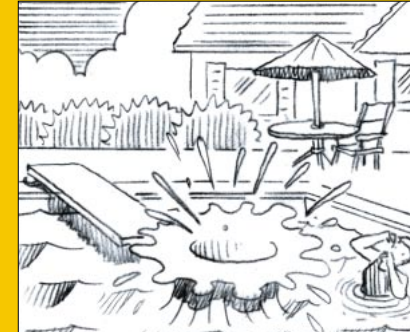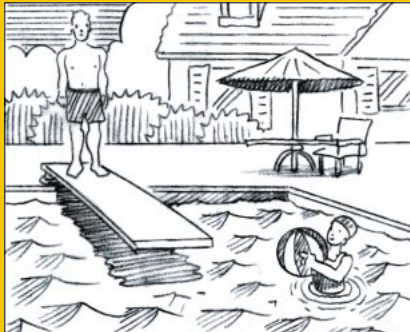
Next to yelling "fire!" in a crowded theatre, there's no better way to clear a room than getting out the home movies. It isn't that friends and family aren't interested in seeing little Mary battle gravity on her first bicycle – it's that the presentation often leaves something to be desired. Most home videos are a seemingly endless series of unrelated scenes, their length made all the more painful by jerky camera movement and unintelligible sound. They're moving pictures, but they aren't movies. A movie tells a story, and any form of storytelling can benefit from planning and editing. Fortunately for home-movie audiences everywhere, today's desktop movie-making tools can help. Apple's £999 iMac DV (the DV stands for "digital video") or £1,119 iMac DV Special Edition (**www.apple.com/uk**), combined with the iMovie software that comes with them, can make a terrific home-movie studio. You can bring video into the iMac DV; then you can use iMovie to remove the boring parts and add sound and special effects. When you're finished, you can export the final product to videotape, publish it on the Web, or email it to others.

iMovie makes movie making easy, but it still has complexities and limitations that may frustrate even seasoned Spielbergs. Here's a look at the production process, along with some tips for working faster and getting around the application's limitations. For tips on planning your movie, see the sidebar "Planning makes perfect".

Reel it in: Capturing video
The first step in creating your home movie blockbuster is getting that footage of Mary's first bike ride off your camcorder and into your iMac DV.

Use a compatible DV camcorder Unlike other home-movie tools, iMovie is designed exclusively for use with camcorders that use MiniDV tapes and have a fast, FireWire interface. If you don't have a DV camcorder with FireWire, see the sidebar "USB-Macs moviemaking". For a comparative review of digital camcorders, see the companion feature, "Camcorder casting call".

Connect your iMac DV and your DV camcorder with a FireWire cable, and you can bring video into your Mac – and send it back to tape – with remarkable ease. The iMovie software controls your camcorder – rewinding, pausing, playing, and recording – in much the same way that professional video-editing software controls high-end video decks. This kind of device control eliminates groping for your camcorder's play, rewind, and other tape-control buttons as you work, and it enables you to record your completed efforts to tape with the click of a mouse. Note that iMovie's device-control delights work only if you have one of the DV camcorders that iMovie supports (see a current list at **www.apple.com/imovie/gear/**). If your DV camera isn't on Apple's list, you may have problems capturing or exporting video – for example, when you try to export video, your camcorder may not actually go into record mode. Camcorders from JVC are especially prone to problems, due to JVC's implementation of the FireWire interface. The above Web page contains tips on dealing with problematic camcorders, but the bottom line is that you'll save yourself some aggravation by beginning with a compatible camcorder.

Start your epic Once the camcorder is connected, choose New Project from the File menu, give your movie a name, and click on Create. Behind the scenes, iMovie creates a folder with the name of your movie. Once you've made edits and added elements, this folder will contain a document icon that represents your project's edits and a Media folder that holds your project's video clips, sounds, titles, and other elements.

Separate scenes When you import – or capture – video, iMovie places a representative icon on a "shelf". From there, you can add the clip to your project. You can capture a 60-minute DV cassette as a single clip (if you had enough free disk space – more about this in a moment), or you could import only specific scenes. But locating such scenes would be tedious. You'd wear out your tendons hunting through an hour of birthday-party footage for the magic moment when your dog discovered the birthday cake. A better technique is to use iMovie's scene-detection feature, which causes iMovie to begin a new clip each time it detects a scene break. Your camcorder generates a scene break automatically each time you press its record button. To turn on scene detection, choose Preferences from the Edit menu, click on the Import tab, and then check the box labelled Automatically Start

New clip at scene break
Belly-up to the spacebar You can also start and stop clip capture by pressing the spacebar as a videotape plays back. This is a handy way to grab portions of scenes: click on iMovie's Play button to play the tape, and when you see something you want to capture, hit the spacebar to grab it.

Build a bigger shelf Despite its name, the iMovie shelf is not one long area, but a grid of thumbnail images. It holds a finite number of clips; the specific number depends on, of all things, the iMac DV's screen resolution. The shelf can hold only nine clips at the iMac DV's default 800-x-600-pixel resolution. To expand its capacity to 12 clips, use the Control Strip or the Monitors control panel to boost the screen resolution to 1,024-x-726 pixels. Whatever you do, don't change the resolution to 640-x-480 pixels – doing so causes iMovie to quit. Regardless of the screen resolution, the movie's final dimensions remain the standard 720-x-480 pixels.

Disk space – the diminishing frontier Beware: each minute of digital video uses about 210MB of disk space, so unless you really have hard-disk space to spare, don't capture anything that you know won't make it into your final project.

Acquiring other content
A real movie uses more than just moving pictures to tell its story – it employs music, sound effects, and still images help to set a mood

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You don't have an iMac DV or a DV camcorder? No matter, – you can still be a part of the moviemaking trend. Several companies also offer video-capture systems that work with other iMac models – and indeed, with any USB Mac. These products are designed for use with analogue video gear, such as VHS or Hi8 camcorders.

Avid Cinema Costing £199 (Avid, 01753 655 999) this app is the best non-DV editing system available for USB Macs. The Avid Cinema software is more powerful than iMovie and just as easy to learn (see Reviews, August 1999).

The accompanying USB-capture hardware enables you to capture full-motion video, but you can't transfer your final product to videotape: you must view it on the Mac's screen or transfer it to an old AV Mac that has video-output features.

You can, however, export to a wider array of video formats than iMovie supports, including RealNetworks' RealVideo G2, the most popular format for streaming Web video.

InterView Costing just £99 (Interex, 01923 266 400), InterView combines USB analogue-capture hardware with Strata's powerful, often complex VideoShop editing software.

VideoShop is far more capable than either iMovie or the Avid Cinema software, but the InterView's lack of printed documentation makes it difficult to learn.

MyTV/FM This $200 translucent blue box from Eskape Labs (**www.eskapelabs.com**) gives your USB-Mac a cable-ready TV tuner and FM stereo tuner – and can also capture video, extra functionality that comes in handy.

The included EskapeTV software lacks editing features, but if you use QuickTime Pro to export video as DV streams, you can use iMovie for both editing and exporting.

You can use any TrueType or PostScript font on your system and a variety of styles to create titles. The following walks you through iMovie's Titles palette.
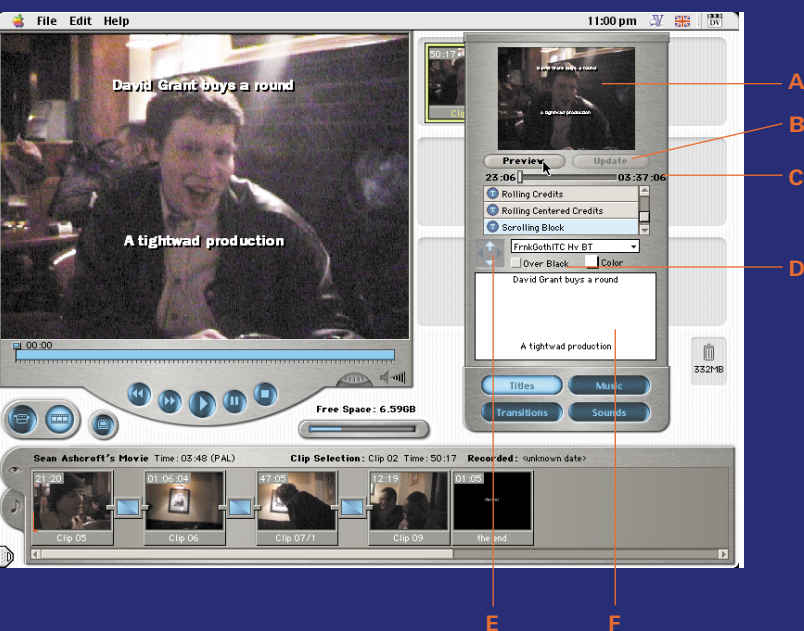
A This is a small preview of the title. To update it, click on the current title style. To view a large preview in the Monitor window, click on the Preview button. To add the title to your project, drag the small preview to the Clip Viewer's timeline.

B When changing an existing title, apply your changes by clicking on the Update button.

C Use this slider to adjust the title's duration. For some styles, this slider adjusts scrolling speed.

D Normally, iMovie superimposes the title text over the currently selected clip. To create a simple black background instead, select the Over Black option.

E With some title styles, you can click on these tiny arrows to specify text alignment and scrolling direction. You can set titles to roll in from either side, or from the top or bottom.

F Type or paste the title's text here. In styles that provide multiple text boxes, you can tab from one box to the next.

Sound effects and backing music can breathe life into the lamest of home video footage – and iMovie gives you enough scope to experiment with both.

A In the scroll-up Sounds menu, first highlight the sound effect you require. In this case, it's a drum roll, chosen for comic effect to mark the announcement by our art man David Grant that he was buying a round – at last.

B The marker square can be dragged along the movie's time line, which is the upper-most blue bar. This is divided into chunks, representing the film's different "takes". The image in the viewing window depicts precisely which frame the marker has been dragged to.

C By clicking and dragging on a sound effect in the Sounds window, it can be placed at an appropriate position in the sounds time line. All effects are represented by purple squares. Here, a trumpet fanfare has been placed so it coincides with the emergence of David's wallet.

D Sound effects can be overlapped, to increase their duration. It's fiddly, but worth it. Here, I stacked a number of drum rolls, to heighten the drama as David approached the bar.
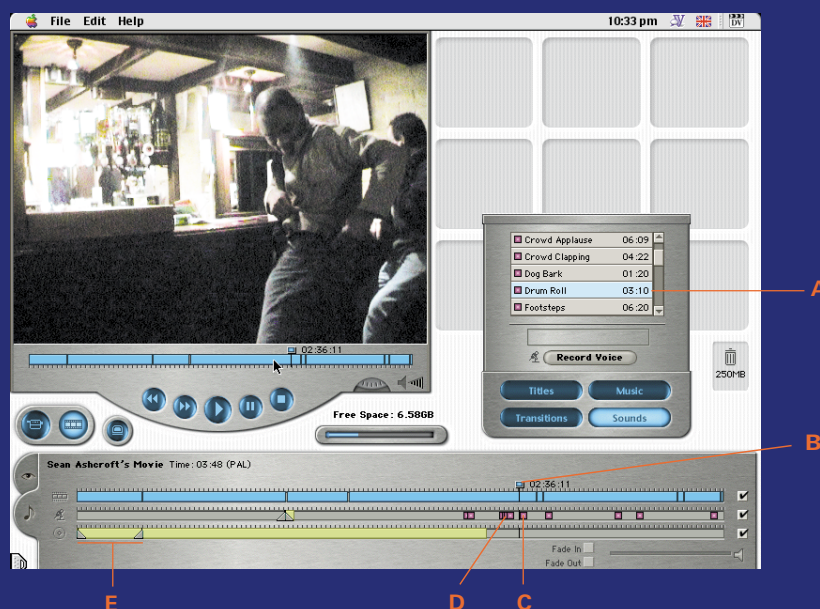
E The yellow bar represents imported audio. To use audio effects, select Import File, under Edit. Highlight AIFF Audio File in the pop-up menu. After importing your track – in this case, Abba's *Money, Money, Money* – its duration is shown by the length of the yellow bar. The area contained by the tab-like markers is all that will play. You can place them where you like. Here, they match the opening titles segment. See "Adding Music" on page 82.
Sean Ashcroft

and enhance the presentation. And hey, some spice can be fun. Why not have "Born to be wild" playing as Mary wobbles successfully down the sidewalk on her two-wheeler? iMovie can also import other types of content: audio files saved in the standard AIFF format, music tracks from audio CDs, and still images saved in any of several popular formats. You can even coerce iMovie into importing existing QuickTime movies that you've created in other programs or downloaded from the Internet. Read on to learn how.

Use CDs for soundtracks – legally iMovie's ability to record music tracks from audio CDs makes it easy to add music to your production. But remember that you can't sell or commercially release movies containing copyrighted tunes. For commercial projects, invest in a buyout music library. Akin to royalty-free stock photography, buyout libraries are offered by companies such as Award Winning Music (**www.royaltyfreemusic.com**) and many others. Do a Web search on buyout music to see what's available.

Import photos and make slide shows You can import still images into a project and combine them into a video slide show, or you can sprinkle them throughout your movie. Still images are often a big part of documentary filmmaking – think of Ken Burns's epics on the Amercian Civil War and then consider how you might apply stills to your efforts. Making a video of your grandmother's 90th birthday party? Scan vintage photos of her and start your movie with them. iMovie lacks image-tweaking features, so if you want to crop, rotate, or otherwise tweak images, do so using an image-editing program, such as Adobe Photoshop 5.5 (£379; Adobe, 020 8606 4001) or PhotoDeluxe (bundled free with many scanners), and then import the edited images. iMovie can import all common image formats.

iMovie displays still images for a default time of ten seconds. To make your slide show or montage's pacing more interesting, vary the duration of still images. To change the amount of time an image appears on the screen, select the image and then type a duration value in the time area of the Clip Viewer. After you've imported images, add transitions between them (cross-dissolves work well).

Import QuickTime movies Your kid dresses up as Darth Vader for Halloween – so why not include a snippet of the *Star Wars* trailer in your Halloween video? (Just don't try to sell the resulting movie). Alas, iMovie can't import QuickTime movies that you've captured using analogue gear downloaded from the Web, or copied from a CD-ROM. But if you have Apple's $29 QuickTime Pro (**www.apple.com/quicktime/upgrade/**), there is a workaround. Open the movie with QuickTime Player, select the Export command, and choose the Movie To DV Stream option from the Export pop-up menu. Next, locate your project's Media folder and save the file there. Now start iMovie and open your project. iMovie will report that your project contains one or more "stray files" and will put them on the shelf; now they're ready to be added to your movie.

Each minute of an exported DV stream will gobble the same 210MB of disk space as captured digital video. Compressed QuickTime movies are massive when saved as DV streams.

Import analogue video iMovie is great for footage you shoot with your new DV camcorder, but what about the years of memories you've collected with your trusty VHS camcorder? iMovie's DV-centric nature works against you if you'd like to capture or edit analogue footage.

Apple suggests buying an analogue-to-DV converter, that transfers analogue footage directly to your iMac. But at around £300, it means having to spend a third of what the iMac DV costs. A much cheaper way is to dub your analogue cassettes to your DV camcorder by connecting the analogue VCR's outputs to the DV camcorder's inputs with standard video-patch cords. Once connected, press the camera's record button and your VCR's play button. When you've finished, use iMovie to capture the DV dub.

The cutting-room floor
Once you've brought the raw material into iMovie, you're ready to assemble your masterpiece. How? Simply drag clips from the shelf into the Clip Viewer, whose timeline-like display enables you to sequence clips, add transitions, and more.

Name your clips iMovie automatically names captured clips, but names like Clip 01 and Clip 02 aren't exactly descriptive. You can rename clips simply by clicking on their names. Give them descriptive titles, such as "bird close-up" or "forestwide shot", to help you identify them.

Trim the fat Chances are, each of the clips you capture has junk at its beginning and ending – some jerk momentarily blocking your view of the recital stage – or maybe just a few seconds of uninteresting footage. By removing – or cropping, in iMovie terms – this excess, you'll make a better movie – and reclaim lumps of disk space as a bonus. To crop a clip in iMovie, you position crop markers to indicate the material you want to keep.

Empty the trash When you crop a clip, iMovie puts its discarded portion in the Trash – not the same as the Trash the Finder provides for discarding unwanted icons, but a separate, iMovie-specific Trash. You can reclaim disk space by emptying iMovie's Trash as you work (choose Empty Trash from the File menu). But if you've done a lot of cropping, emptying the Trash can take a few minutes, so wait until you're ready to take a break.

Play only one thing Remember that you can choose to play just one item – a clip, a title, a transition, or a music soundtrack – by selecting that item in the Clip Viewer and then clicking on the Play button or hitting the spacebar. This can be a handy way to check out a title or transition you've just added. To play an entire project, deselect everything (press ⌘-D or click in a blank area of the Clip Viewer) and then click on Play.

Move clips faster If you need to move a clip a significant distance – say, from the end of a project to the beginning – you can drag it and let the clip window scroll automatically. But there's a faster way. Drag the clip from the Clip Viewer into any empty box on the shelf. Scroll through the Clip Viewer to the new destination, and then drag the clip from the shelf back into the viewer.
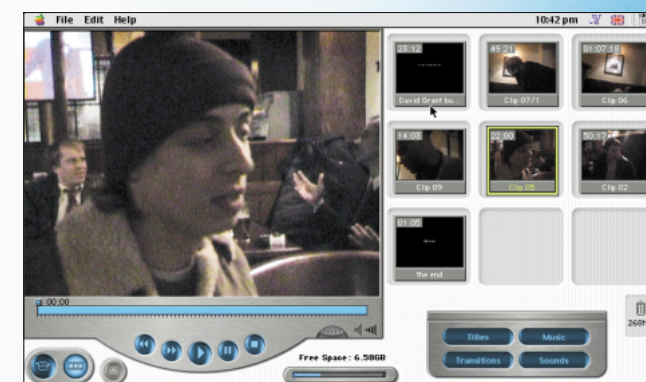
Editing sweet
The Pasteboard comprises nine squares that can be filled with a movie's different takes. Their order can be switched by simply clicking and dragging them from square to square.

Adding polish Text titles and visual transitions can add class to your project. Titles can set the stage by describing a place or a scene, and they give credit where its due. And visual transitions, when used sparingly, can be pleasant alternatives to jarring cuts.

Transitions can even help tell a story. For example, a cross-dissolve – one clip fading out while another fades in – can imply the passage of time. (Imagine slowly dissolving from a nighttime campfire scene to a campsite scene shot the following morning). Similarly, iMovie's Push Right transition, where one clip pushes another out of the frame, is a visual way of saying "meanwhile... ". – imagine using this transition between a scene of an expectant mother in the delivery room and a shot of her husband pacing in the waiting room, chain-smoking nervously. (OK, so this is an old-fashioned maternity movie).

Titling tips   To superimpose title text over a specific clip, select the clip before opening the Titles palette. Be sure to choose a text colour that adequately contrasts with the clip's contents. If your movie will be viewed on an analogue television, you'll get the best results with chunky fonts that remain legible despite the TV's limited resolution. For example, Arial Black works better than Times, which has ornamental serifs that can break up when viewed on a TV set. (For more information on creating titles, see the sidebar "Roll credits").
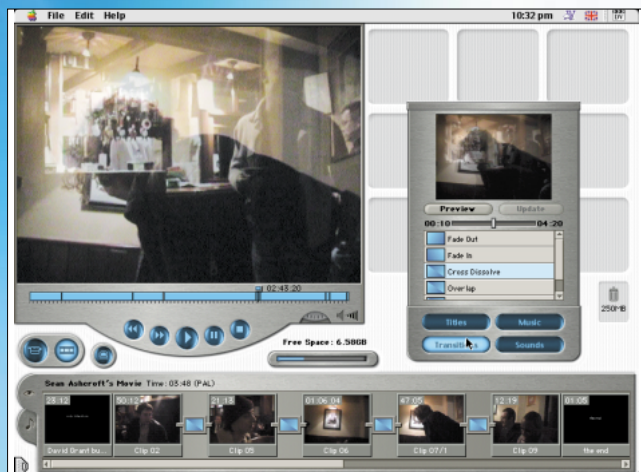
To good effect
Visual links can be applied to stitch movie segments together. Above, Cross-Dissolve has been dragged-&-dropped between "takes" – with the effect seen in the Preview Window.

Inserting a clip between a transition   You've added a Push Right transition to that maternity movie, but then you decide you want to insert a new clip – a shot of the doctor striding down the hospital hallway. If you drag the new clip to the Clip Viewer, you'll notice that iMovie doesn't open a space in which to drop it. That's because inserting a clip between two clips connected by a transition is a two-step process. Delete the transition by clicking on it and then pressing the delete key. Now insert the new clip.

Updating titles and transitions   Change your mind about using a font, title, or transition style? To make a change, click on it in the Clip Viewer. Make the changes, and then click on the Update button in the Titles or Transitions palette in the Effects palette.

Some background on rendering   When you create a title or transition, iMovie must create its video frames. This rendering process takes time and memory; you'll notice that iMovie slows down when it's taking place. Avoid adding multiple transitions or titles in rapid-fire succession – this not only slows iMovie to a crawl but also might cause a memory error message. To gauge how long the wait will be, look at the window that contains the transitions or titles you've added: a little red progress bar shows how far along rendering is.

Improving on a good thing   The cross-dissolve is one of the most often used transitions, perfect for creating a graceful link between scenes and for implying the passage of time. Alas, iMovie 1.0's cross-dissolve transition adds an undesirable slow-motion effect to clips. Apple fixed this in iMovie 1.0.1, a free update (available at **www.apple.com/imovie/**). While you're downloading the iMovie 1.0.1 updater, also grab the iMovie Plug-in Pack – it adds six title styles and eight transition effects. Just remember to use these spices judiciously.

Listen up: sound advice

iMovie's audio features are weak. You can't, for example, replace one clip's audio track with another's. This is a common technique in cutaways. Despite this and other limitations, there are still a few sound tricks you can perform.

Adding music   If you have a scene with less-than-gripping audio – the unintelligible din of a party, for example – consider adding a music soundtrack. In iMovie's Audio Viewer, lower the scene's audio levels until they're quieter than the music but still audible. If the clip's audio is genuinely horrific – nothing but outdoor wind noise, for example – mute it entirely.

Sound and transitions   You've lowered a clip's volume or checked its Fade In box. Then you add a transition before the clip. When you play the movie, the transition contains a brief blast of the clip's audio at full volume – not good. The solution: Select the transition and then turn its volume down partway or all the way.

Working around volume limitations   A common video-production technique is varying a clip's volume levels to fit around a music soundtrack or other audio. Aside from fading in and out, iMovie doesn't let you vary a clip's sound level. But there's a workaround – split the clip at the point where you want to change its level (choose Split Clip At Playhead from the Edit menu). You now have two clips with levels you can adjust independently.

Expanding your soundscape   Apple has posted a page of free sound effects and music clips – animal noises, crowd sounds, wind and weather, and much more (**www.apple.com/imovie/freestuff/**). You can also add any AIFF sound file to iMovie's Sounds palette: just stash the file in the Sound Effects folder, which is tucked inside the iMovie folder's Resources folder.

It's a wrap: exporting your movie

With iMovie's Export Movie command, you can record it to videotape, show it to friends and family, or save it as a QuickTime movie and post it on your Web site for all the world to see.

End with black   When exporting to videotape, iMovie lets you add a few seconds of black before the movie begins. Unfortunately, it doesn't let you add black after the movie. When your movie ends, you're jarred back to the camcorder's blue background. To add some black, use an image-editing program to create an all-black PICT file whose dimensions are 720-x-480 pixels – these are the dimensions of a DV movie frame. You can also download an all-black file from Apple's free-stuff page, mentioned previously. Then import this image into your project and drag it to very end of the timeline.

Export to QuickTime   iMovie provides several presets for exporting a project as a QuickTime movie – each aimed at common tasks, such as sending the file via email or posting it to a Web site. You can also specify your own settings by choosing Expert from the Export Movie dialogue box's Format pop-up menu. For example, if you're going to post your movie on the Web and want to make for a faster download, you might opt for a mono soundtrack instead of a stereo one. (Less sound means a smaller file size). Or you might prefer to use the Cinepak video-compression scheme for broader compatibility – iMovie's default scheme, Sorenson Video, isn't supported by older versions of QuickTime. (To learn more about the art of video compression, visit Terran Interactive's Codec Central site, at **www.codeccentral.com**).

The last word

The DV format and FireWire interface have transformed video production, lowering both price and hardware requirements for creating professional-quality video – making it easier for the rest of us to tap our creative juices, preserve family memories, or promote our businesses and organizations. By building FireWire into the iMac DV family and creating iMovie, Apple has made digital-video editing more accessible than ever.

Of course, great gear doesn't guarantee great movies. That requires practicing the same cinematic storytelling techniques that go back to the days of flammable film. Learn those basics, and you'll go from making moving pictures to making movies.

Jim Heid has been making home movies since 1978 and editing desktop video since 1991.
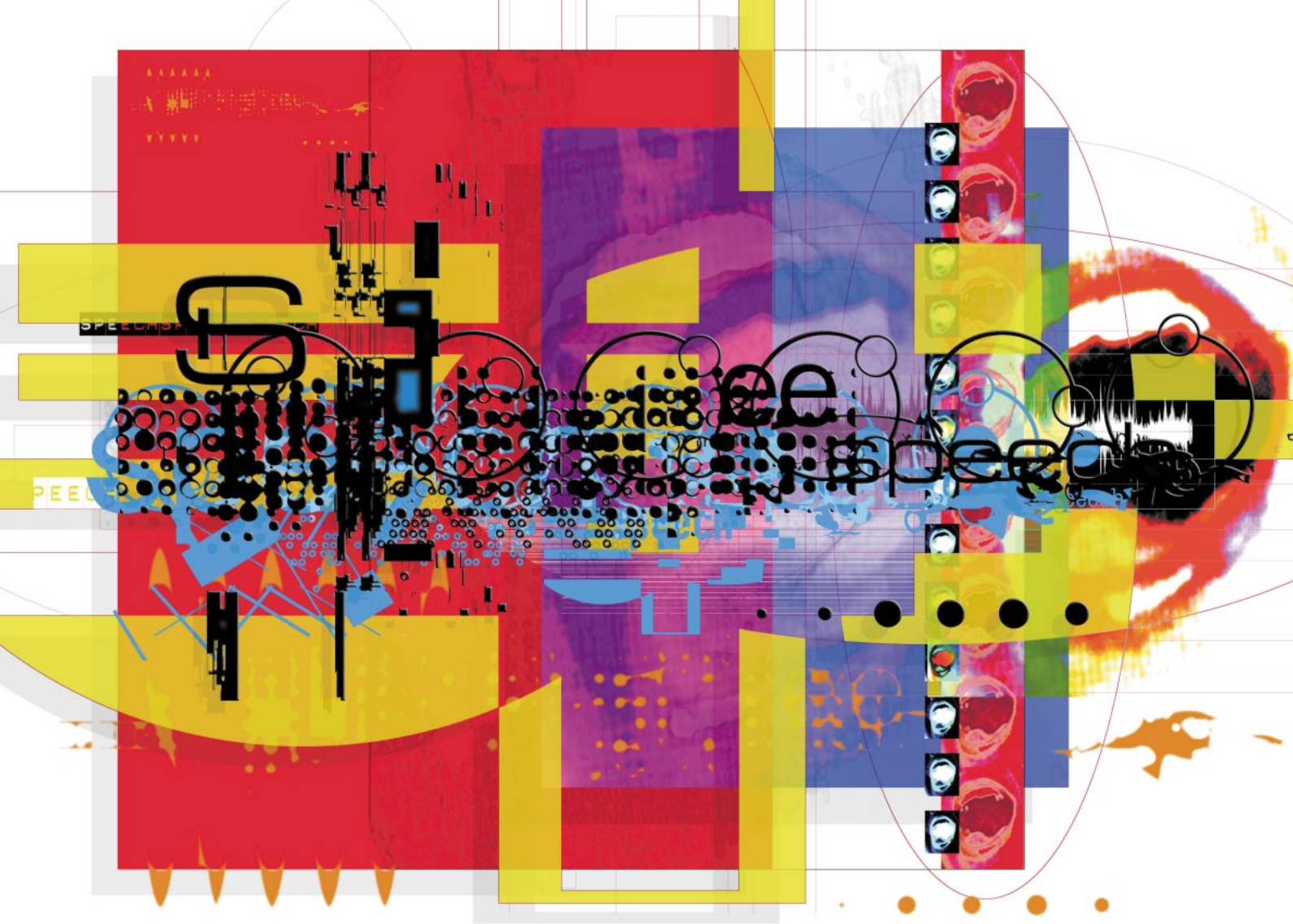
Freedom of speech

Speech-recognition on the Mac is coming of age. By Vic Lennard

T en years ago, the idea of speaking to a computer and having it respond accordingly was the stuff of sci-fi tales such as *2001: A Space Odyssey* and *Star Trek*. Yet, bit by bit, Mac software has made voice recognition a working reality. Now, with the arrival on the Mac of IBM's previously PC-only voice-recognition powerhouse, ViaVoice, things are starting to motor.
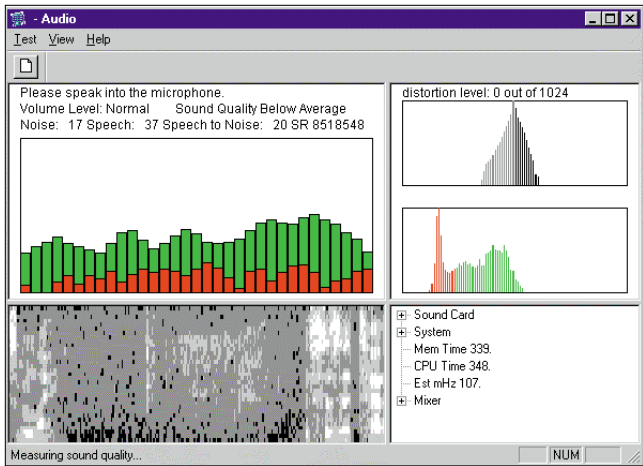
On the horizon
The release of Mac OS X later this year is touted to see the launch of NaturallySpeaking – Dragon Systems' currently Windows-only continuous-speech program.

Voice recognition on the Mac started with PlainTalk 1.0, which worked with Mac OS 7.1 and Quadra 660/840 AV computers. This has since grown into a collection of programs – including English Text-to-Speech and English Speech Recognition – that allows your Mac to speak on-screen text and respond to spoken commands.

PlainTalk 1.5.4, part of Mac OS 8.6, added support for the 44.1KHz sound input used on iMac and G3 computers – but a real appreciation of the technology requires Mac OS 9, which comes complete with version 2 of the software. Here, it supports the Multiple Users facility by letting you log into a Mac by speaking your name and a password to confirm your identity. It also has the additional advantage of supporting vocabularies for individual applications, so that the same spoken phrase can result in different actions, depending on the active application.

Anyone with a Power Mac running Mac OS 7.5 or later and supporting 16-bit audio can experience PlainTalk first-hand. Using a PlainTalk-compatible microphone, built into AppleVision monitors, you can control basic tasks such as launching applications, closing windows or emptying the Trash. If you've never tried it, take a look at the Speak to Me panel.

How does speech recognition work?
Most programs work in a similar manner. The microphone creates an analogue signal that is received at the Mac's audio-in socket, digitized and compared with a vocabulary held in memory for speed of access. An additional hard-disk-based sound dictionary may come into play if recognition is not possible from the memory-based one. Once a match is made, the program either displays the words on screen or acts upon them. The speed of recognition is directly related to the processing power of the computer – hence the reason we are seeing dramatic steps forward at present.

PlainTalk is a good example of a speaker-independent system – that is, one that doesn't need to be trained to recognize the qualities of a particular person's voice. Such a system is perfect for giving commands like "close window" or "what day is it?", because such short phrases are unlikely to cause any ambiguities. Indeed, PlainTalk's main uses are to run an AppleScript or launch a program from an alias in the Speakable Items folder via a spoken phrase, or to act on a recognized phrase. Something like "insert today's date" can be highly functional when working with a word processor, although "tell me a joke" is less useful: "Knock, knock." "Who's there?" "Orange." "Orange who?" "Orange you glad you bought a Power Macintosh?" Let's hope PlainTalk 2.0's programmer didn't give up his day job to be a comedy scriptwriter.

A speaker-dependent system is imperative once a program has to work with a large vocabulary of words. In effect, you have to train the application to recognize the nuances in your voice. Such initial

Making MacSpeech

At the recent January 2000 Macworld Expo, MacSpeech demonstrated its TalkAnywhere speech-recognition technology. Using the Philips FreeSpeech 2000 Speech Recognition Engine, MacSpeech intends to launch a number of Mac-only programs in the not too distant future.

For now, ListenDo! has been released as freeware. Compatible with Mac OS 9, ListenDo! works with Apple's PlainTalk and controls the Mac through voice commands. You can pull down menus by saying its name, followed by the word "menu", and use any of the items within the Speakable Items folder including AppleScripts and program aliases. It also includes a ScriptPak for control of AppleWorks. You'll find a copy of the installer in the Speech Recognition folder inside Serious Software on our main cover CD.

Drop everything
Dropdown menus appear through voice commands, courtesy of ListenDo!

Speech mark
While working on its TalkAnywhere speech-recognition technology, MacSpeech has released ListenDo! – a PlainTalk enhancer – as freeware.
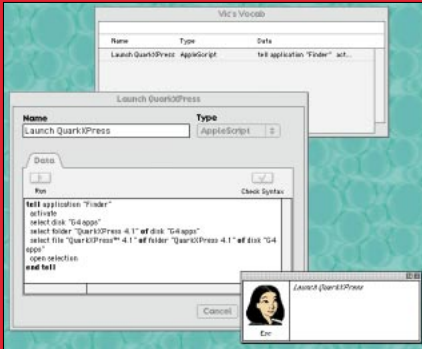
training is a painful experience and may take in excess of an hour, until enough information has been gathered on your voice to compare with the programmed-in models and make the necessary adjustments. You only have to do this once – or do you? A head cold or a sore throat change the intonation of your voice substantially and will entail retraining.

Discrete vs continuous speech
Early incarnations of speech-recognition software, such as Dragon Systems' PowerSecretary, required you to adopt a less-than-natural approach to dictation. Based on discrete technology, where words were treated as individual entities rather than a collective phrase, the disadvantages were obvious: a sentence such as "Please listen to my pleas" was highly unlikely to appear correctly on-screen. It has a further disadvantage: it's slow. Because dictated speech is littered with pauses, you're unlikely to… be… able… to… work… up… a head of speed beyond around 50 words per minute.

Even so, an application based on discrete technology still has something to offer, as Dragon Systems' current Mac program

▶ main text continues page 88

First continuous-dictation voice-recognition Mac app

ViaVoice
Publisher: IBM   **01475 555 047   www.ibm.com/software/speech/**
Pros: Cheap; impressive input speed and accuracy; easy to edit; good UK English vocabulary
Cons: Memory requirement; inflexibility with -sing word-endings
Price: £69.99 (inc. VAT)
Star Rating: ★★★★★/9.0

Available on the PC platform for the past two years, IBM's ViaVoice is the first continuous-speech program to be available on the Mac. Boasting a UK English vocabulary of 100,000 words, garnered from analysing one billion words of text, ViaVoice also allows for a user dictionary of up to 64,000 words.

The initial voice-training is like having teeth pulled: painful, but necessary. Setting up the mic level and background noise – followed by a voice analysis – takes up to 45 minutes. At least we get something classy to read – I'd forgotten how enjoyable *Alice in Wonderland* is.

Because we are idiosyncratic when it comes to writing style, ViaVoice can analyse existing documents. This helps it build up a model for added accuracy.

Dictation takes place in ViaVoice's SpeakPad, a word processor similar to SimpleText. The session starts with a brisk "what can I say" which brings up a window of the same title that lists all spoken commands: cursor movements, dictation commands and text selections.

The first thing to emerge as you start working is how invisible the system is. Dictating at around 120 words per minute, pretty fast by anyone's standards, it's not difficult to knock up a 95 per cent rate of accuracy – that's around half a dozen incorrect words a minute at worst when dictating at speed. The correction procedure is equally impressive. Say, for example, the word "invisible" in the first line of this paragraph came out as
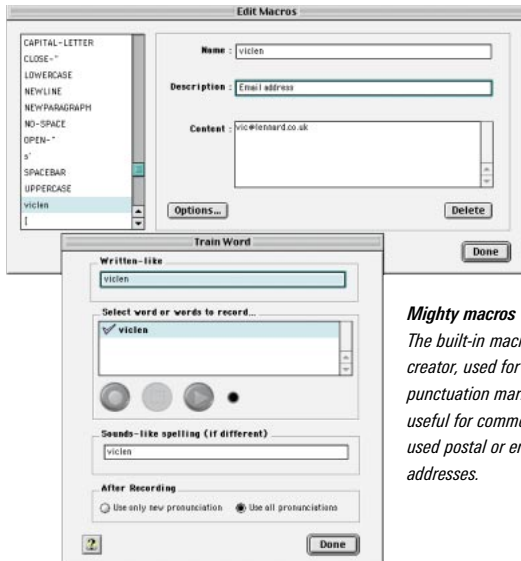
"visible"; saying "correct visible" brings up the Correction window with a selection of possible alternatives. If none of these fit the bill, the correct word can be spelt in, either letter by letter or phonetically, in alpha-bravo form. The What Can I Say window even changes to show this set of words. Another way of making this correction is to say "select visible". ViaVoice highlights the word, allowing you to utter the replacement word "invisible".

There are macros as standard for punctuation purposes. Saying "fullstop" results in a "." followed by a space. In the same way, oft-used phrases can be recorded and then entered via a keyword. For instance, email addresses will always be awkward to dictate. Pick a word you never use in text and record this as the macro keyword. It will then appear in the What Can I Say list.

Text can be styled and formatted and then transferred to AOL, AppleWorks, Microsoft Word, Netscape or Outlook Express via a simple voice command. For other programs, the standard copy and paste has to be used via the Mac's Clipboard, with the loss of any formatting information.

OK in the UK
Rather than simply release a rehashed US edition in the UK, IBM has worked hard to present a thoroughly usable version of ViaVoice. The UK vocabulary is impressive – football teams, including Tottenham Hotspur, towns and counties

such as Gloucestershire and Bicester, and TV entities such as the Teletubbies are all recognized. Similarly, UK phrases with odd homonyms are well catered for. "I practise golf in my law practice" and "licensed to kill with a gun licence" both work. Also, difficult phrases such as "check whether the weather has improved" and "please listen to my pleas" are handled impeccably.

Another UK oddity is the formatting of currency, time and dates. "September the 21st" results in September 21st while "thirty five pounds and 60 pence" produces £35.60 as expected. ViaVoice supports the most natural way of saying number-based terms.

Macworld buying advice
The minimum system requirement is a 233MHz iMac with 64MB usable RAM, 300MB available hard disk space and Mac OS 8.5.1. Most standard iMacs will need a RAM upgrade to at least 96MB, allowing for system usage. IBM also advises the use of 10MB of virtual memory. Our testing was done on a G3 PowerBook with virtual memory turned off – with no appreciable loss of performance.

IBM has had three years of feedback on ViaVoice from the PC market so what we have is not your usual version 1.0 program; it's polished, highly functional and easy to use.

The UK release is a version 1.03 and incorporates fine-tuning on the handling of background noise, as well as faster text analysis. It's good value for money – and if you spend lots of time at a computer it's for you.

One gripe is ViaVoice's US-only version of the suffix "-sing" (correct UK useage is "-zing"). It would be useful to have a user preference for either ending.

By the way, the Andrea low-noise headset comes complete with plastic snap-ons for each iMac colour.
Vic Lennard

Mighty macros
The built-in macro creator, used for punctuation marks, is useful for commonly used postal or email addresses.

Word perfect
ViaVoice's UK English dictionary is impressive, handling English and Welsh placenames, football teams and players, TV programmes and UK spelling (above). It's Correction window (below) allows the user to select given alternatives, or to spell or type words letter by letter.

Jack in the box
The setup automatically recognizes your Mac and shows where the two differently coloured jack plugs go – a nice touch.
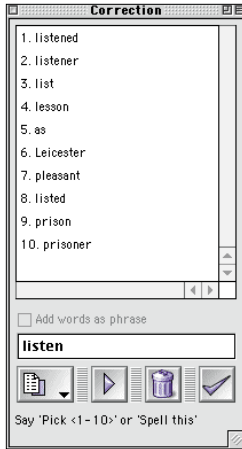
Speak to me

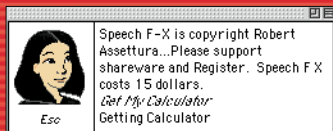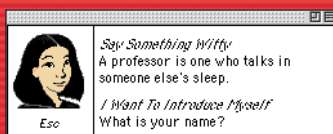**S**peakable Items is part of PlainTalk and allows you to speak commands to your Mac. All settings reside in the Speech control panel and include the selection of 25 voices, although some –

That's an order
*SpeechFX adds scripts to Speakable Items, including "Get my calculator".*

Persona non grata
With SpeechPersona, all you need is Jon's Commands and a sense of humour.

such as Bubbles or Bahh – are totally unusable! Best of the bunch is the high-quality version of Victoria. Set the keyboard shortcut for listening, the sound you want to hear when a phrase has been recognized. Turn it on from either the control panel or control strip module at which point the feedback window opens.

Speakable Items comes complete with a set of commands. When you say the name of an item, your computer acts as if you have double-clicked on the icon. The likes of "close this window" or "hide all applications" can be quite useful – and make an alias of your QuarkXPress application, name it "Open Sesame", place it in the Speakable Items folder.

For real control of the Finder, use Dave Miller's excellent set of over 80 AppleScripts; Voice-controlled Finder 1.8 is in the Speech Recognition folder inside Serious Software on our main cover CD. Also included are a number of other shareware and freeware speech products – requiring PlainTalk – including:
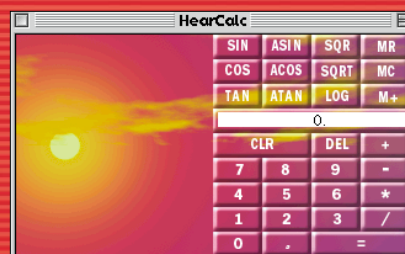
Calculated risk
Courtesy of HearCalc 2.0, you need never reach for that boring ol' calculator in the Apple Menu Items.

- Michael Kamprath's Speech Typer and Application Commander.
- Robert Assettura's SpeechFX, a further set of AppleScripts for Speakable Items.
- Purple E Software's HearCalc 2.0, a voice-controlled calculator.
- Olafur Sindri's SpeechPersona, a program for adding personality to your Mac.


Stack 'em up
Courtesy of PlainTalk and the shareware SpeechFX – and Voice-controlled Finder 1.8 – more than 200 useful items can be stacked up in the Speakable Items folder.

VoicePower Pro shows. While some similar-sounding words may need to be spelt in, using the standard alpha-bravo international alphabet, Voice≈Power Pro offers incredible support for AppleScript. As such, it can control almost any aspect of your computer from simple Finder commands through to the most complex of application macros.

For instance, one recent stiff challenge for the program was to lay out a page in a popular television listings magazine using Quark XPress – and no keyboard input. This was achieved courtesy of a number of pre-programmed AppleScripts. Continuous speech is very different. We don't speak in fits and starts, but in phrases with sets of connected words.

In effect, someone listening to a conversation could miss half a sentence and yet still be able to make sense of it, inherently predicting the most likely words to have occurred. A continuous-speech app has to work in a similar way: it has to recognise groups of words and the likelihood of them appearing in everyday speech.

Taking this a step further, it has to select the correct homonyms – words that sound the same but are spelt differently, according to their usage. Some are obvious, such as "through" and "threw", while others, like "licence" and "license", can catch-out even experienced journalists.
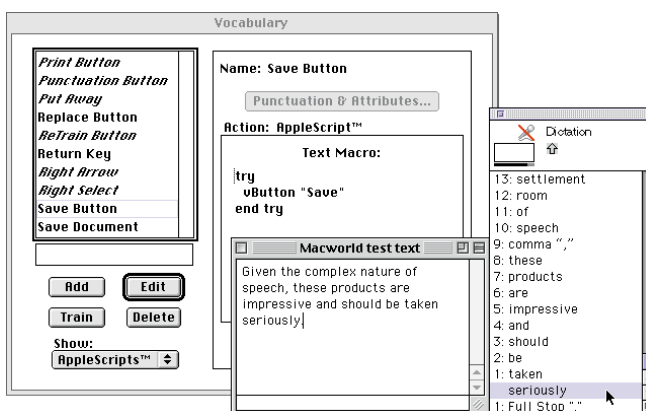
Control freak
Voice≈Power Pro, Dragon Systems' current Mac speech-recognition program is of the older discrete speech variety, but offers control of most aspects of the Mac through AppleScripts.

Where to next?

ViaVoice is likely to be followed shortly by another continuous-speech product from MacSpeech. Further down the road, Dragon Systems will probably release a Mac OS X version of NaturallySpeaking.

There are obvious markets for those who are visually or speech impaired, or for RSI sufferers. But a number of hi-tech aspects are being researched currently – speaker verification, for instance, where a computer can verify a person's identity from their voice (as with Mac OS 9's Multiple Users and PlainTalk). No more hunting around for a PIN number when you want to withdraw cash from the bank. No more silly passwords when you start up your Mac. Sooner rather than later, almost all security aspects will be handled by our voices.

Three years ago, PowerSecretary retailed at $695 on the Mac, PlainTalk had been put on ice and ViaVoice for Windows had just appeared for $199. Now, we have the horsepower within the G3, G4 and best-selling iMac ranges, plus the sales levels to make the Mac platform a viable one for development. PlainTalk is at version 2.0 and ViaVoice has appeared on the Mac for less than £70. Speech recognition is most definitely in the ascendancy. **MW**

MACWORLD
AWARDS 2000

Editors' and Readers' Choice awards for the best Macintosh hardware and software

Since last year's Macworld Awards, the Macintosh has probably had its best year ever. Apple has revamped its phenomenally successful iMac, adding digital-video capabilities and improving its design, without changing the intrinsic product. The iMac's portable sibling – the iBook – was launched, taking Apple's new-found consumer passion on the road. And the iBook's super AirPort wireless-networking technology soon worked with all new Mac systems.

The blue-&-white G3 Power Macs were replaced with the gleaming G4 Power Macs – despite delays, these pro workstations really took off after hitting 500MHz. When software developers rewrite their code to speed up the G4's promising Velocity Engine, we should see these machines' real potential. The pro portable PowerBook was also improved, with a slimmer case, DVD and FireWire.
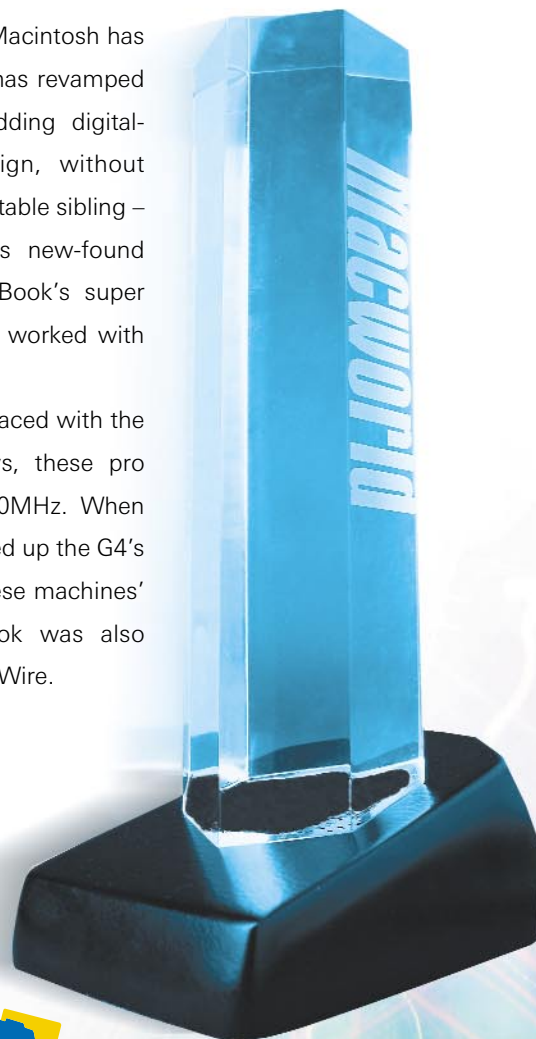
EDITORS' CHOICE: **PRODUCTIVITY HARDWARE**

Apple continues to improve its professional portable, this year taking its speed up to a blistering 500MHz and adding FireWire connectivity to support leading digital camcorders. The world's fastest laptop just got faster, and capturing digital video just got a whole lot easier with **Apple's PowerBook**.

Runners up:
Stylus Photo 1270 – Epson
Phaser 780 – Tektronix
Intellimouse Explorer – Microsoft
DVD Remix – Mac & More
37GB FireWire drive – LaCie

EDITORS' CHOICE: **PRODUCTIVITY SOFTWARE**
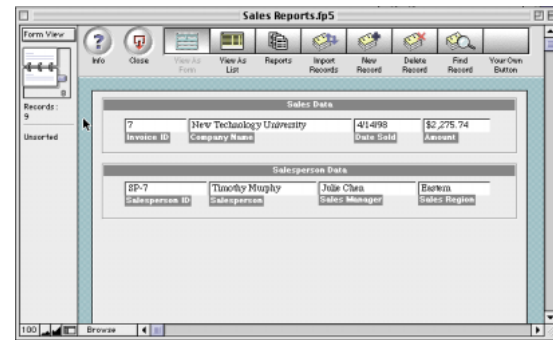
Now spun off as a separate entity to mothership Apple, FileMaker is a decidedly cross-platform application – and that's essential in business nowadays. **FileMaker Pro 5** even looks like Microsoft Office 98, and supports the Windows-based Office 2000. With FileMaker, the Mac remains a viable business alternative.

Runners up:
ViaVoice Millennium Edition – IBM
Acrobat 4.0.5 – Adobe Systems
DiskWarrior 1.1 – Alsoft
Meeting Maker 6 – On Technology
Mac OS 9 – Apple

EDITORS' CHOICE: **CREATIVITY SOFTWARE**
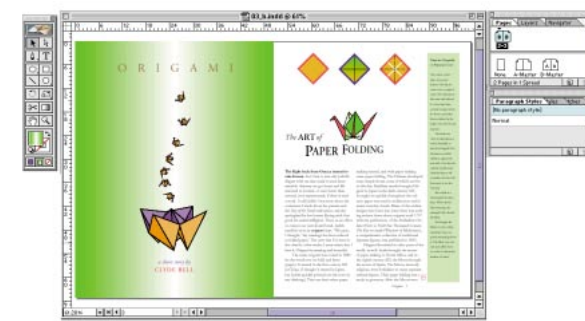
PDF-based **Adobe InDesign** is modern, stylish and modular. Its interface is streamlined, well organized and customizable. The new generation of formatting enhancements go well beyond anything in other page-layout programs. Highlights are optical kerning, multiline composition and multiple undos.

Sponsored by
EPSON

Runners up:
Photoshop 5.5 – Adobe Systems
Painter 6 – MetaCreations
Carrara – MetaCreations
QuarkXPress 4.1 – Quark
PressReady 1.0 – Adobe Systems

EDITORS' CHOICE: **CREATIVITY HARDWARE**

Epson has excelled itself, with its **Stylus Photo 1270** being its quietest, fastest, and – most importantly – best-quality ink-jet printer ever, at least in this price range. £399 (inc. VAT) gets you great photographic quality at A3 poster sizes, and it uses a new ink that is colour-fast for at least ten years.

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Adobe

Runners up:
D1 Digital Camera – Nikon
Cinema Display – Apple
Studio Display 21 – Apple
Power Macintosh G4 – Apple
Phaser 850 – Tektronix

# EDITORS' CHOICE: **CONNECTIVITY HARDWARE**

LaCie's NetBox brings high-end archive storage into a new price bracket. Less than £1,500 gets you up and running with a minimum 27-CD capacity – that's a lot cheaper than traditional CD jukeboxes. For your money you get at least an 18GB hard drive, fast CD-ROM, and a tiny networking computer running Linux.

Runners up:
AirPort – Apple
XpressSCSI – Microtech
PCI-USB – Keyspan
PowerDomain 39160 – Adaptec
SkyLine Wireless 11Mbps PC Card – Farallon

EDITORS' CHOICE: **CONNECTIVITY SOFTWARE**
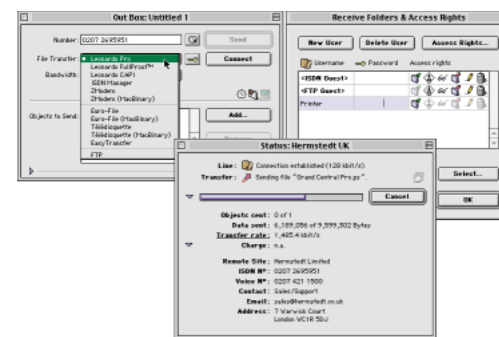
In the past, keeping compatible with ISDN protocols meant you needed different packages to send to different clients and countries. Faster and more flexible than ever, **Hermstedt's Grand Central Pro 2** now offers compatibility with all peer-to-peer ISDN clients, with improved compression for Hermstedt card users.

Runners up:
Virtual PC 3.0 – Connectix
MacDrive 98 – Media4
Mac OS X Server 1.2 – Apple
Hotline 1.7.2 – Hotline Communications
SoundJam – Casady & Greene

EDITORS' CHOICE: **MULTIMEDIA HARDWARE**

Years ago we were promised virtual reality. That's come to mean almost any 3D graphics on the Mac, but now it's a reality with the **ProFormance III** video card and the **ProCyber 3D** glasses. Get inside your favourite game like Quake, Unreal or Descent – and feel like you're really there – if you can take the heat…

Runners up:
Power Macintosh G4 – Apple
Panoscan – Panoscan
Electron 22blue – LaCie
MicroDrive – IBM
DSCF-505 – Sony

EDITORS' CHOICE: **MULTIMEDIA SOFTWARE**
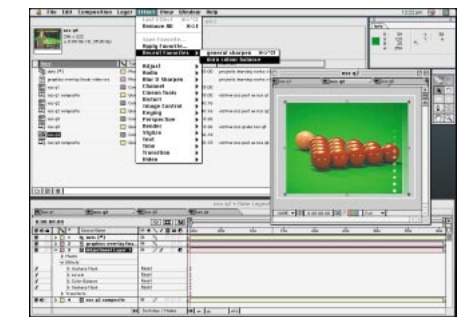
Adobe has added dozens of enhancements to its motion-graphics and video-compositing powerhouse, **After Effects 4.1**. Some are major, some minor; taken together, they make a terrific, must-have upgrade. Alongside productivity boosters, there's improved text and masking features, and a wider range of 3D filters.

Runners up:
Commotion 2.1 – Puffin Designs
Final Cut Pro 1.2 – Apple
Amorphium – Play Inc.
Media Cleaner Pro 4 – Terran Interactive
Cubase VST 4.1 – Steinberg

EDITORS' CHOICE: WEB PUBLISHING
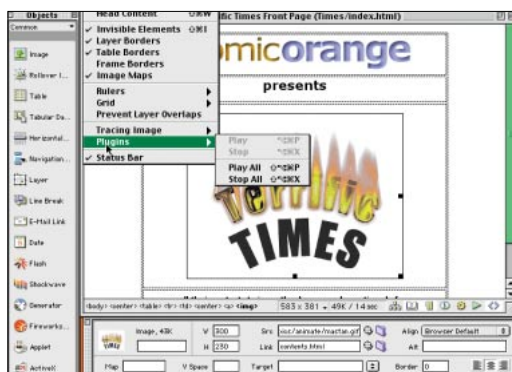
No other tool comes close to offering such a powerful and broad list of Web design support as **Dreamweaver 3**. From HTML, DHTML, CSS and rollovers to site management and RoundTrip HTML, the benefits for Web designers using Dreamweaver are unsurpassed. Macromedia continually raises the standards.

Runners up:
Fireworks 3 – Macromedia
WebStar Server 4.0 – StarNine
Flash 4 – Macromedia
Photoshop 5.5 – Adobe
Quicktime Streaming Server – Apple

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CU
COMPUTERS UNLIMITED

EDITORS' CHOICE: ENTERTAINMENT

Sick of Man Utd winning everything? With **Feral Interactive's Championship Manager 99/00** you personally can guide any team from 16 national leagues to goals and glory. Armed with a San Siro-full of stats, build your chosen side into championship winners. It's not just putting the ball in the back of the net…
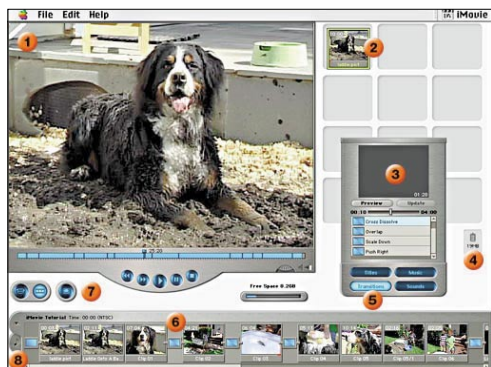
Runners up:
Star Wars Episode 1 Racer – Lucas Arts Ents.
Rainbow 6 – GT Interactive
Unreal Tournament – MacSoft
Tomb Raider III – Eidos
Caesar III – Sierra

EDITORS' CHOICE: CONSUMER SOFTWARE

Apple is determined that digital video is the next big thing for personal computers. After the Internet, it may very well be right. To start the cameras rolling, Apple bundles the simple but professional-looking **iMovie** with all its DV iMacs. Home movies are usually dull, amateur affairs – with iMovie, at least they're slicker.

Runners up:
iTools – Apple
Desktop Software for Mac 2.5 – Palm
SoundJam – Casady & Greene
Stuffit Deluxe – Aladdin
QuicKeys 4.1 – CE Software

EDITORS' CHOICE: CONSUMER HARDWARE

We liked Apple's consumer portable when it first came out, but the bright blue and orange colour schemes put many people off. Now – as well as pumping up the G3 processor to 366MHz and doubling RAM and hard-disk size – Apple offers us the sober-toned, Graphite **iBook Special Edition,** possibly the best-looking laptop ever.

Runners up:
iMac DV SE – Apple
Palm IIIc – Palm Computing
S10 digital camera – Canon
CanoScan FB 636U – Canon
DeskJet 970cxi – Hewlett-Packard

EDITORS' CHOICE: BEST TECHNOLOGY

The thing we loved the most…

Apple killed the floppy disk. Now, Apple's stuck the knife in the bane of any network – cables. **AirPort's** 11Mbps wireless-networking technology means you can browse the Web and link with other Macs up to 150ft away, cable-free. Within months of its launch, AirPort worked with every new Mac system – neat.

Runners up:
iTools – Apple
ViaVoice – IBM
Sherlock 2 – Apple
QuickTime 4.1 – Apple
Gulfstream V – Gulfstream

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FileMaker.

READERS' CHOICE: BEST SOFTWARE

Photoshop 5.5's new features – including dramatically improved GIF and JPEG optimization – focus narrowly on the Web. Furthermore, it includes ImageReady 2, a Web-graphics editor that automates image slicing, JavaScript rollovers and animation. *Macworld* readers who use Photoshop and design for the Web just love it.

Runners up:
Dreamweaver 3 – Macromedia
Mac OS 9 – Apple

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DIREK TEK

READERS' CHOICE: BEST HARDWARE

Last year, *Macworld* readers flocked to the innovative all-in-one iMac as fast as the rest of the world. Now, you've voted its successor, the **iMac DV**, your favourite piece of Mac hardware. A wise choice – as Apple has refined the case, junked the fan, added FireWire, DVD and iMovie, as well as increasing RAM and hard-disk capacities.

Runners up:
iBook – Apple
Power Mac G4 – Apple

Sponsored by

DIREK TEK

READERS' CHOICE: BEST DEALER

For the second year running, *Macworld* readers have voted Apple-authorized reseller **MacWarehouse** their favourite Mac dealer. You can't miss the bright yellow ads in *Macworld* or the constant stream of face-filled catalogues. According to our readers, you can't beat its service or prices either.

Runners up:
Mygate
Computer Warehouse

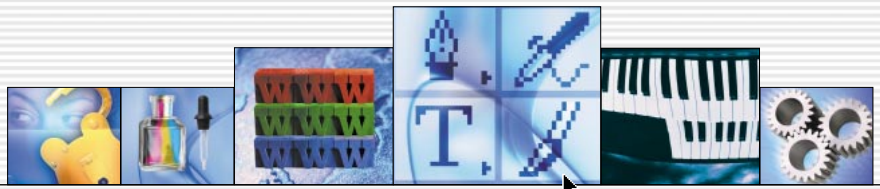*Sponsored by*

INGRAM MICRO

The audio-visual presentation at this year's Macworld Awards – held at the BBC Television Centre – was a production of Multimedia Workshop, a division of DMP, Dora Media Productions. Multimedia consultants, Robert Alexander and Nik Crosina, used several G3 PowerBooks and G4 Power Macs to create a variety of BBC themes for the three-hour presentation.

Stay sharp

Photoshop's Unsharp Mask filter is vital for digital imaging. **By David Blatner**

No matter how good your scanner, or how crisp your original, you're certain to lose some sharpness when you digitize an image. Images from low-end flatbed scanners always need a considerable amount of sharpening. Even scans from high-end scanners need sharpening – though scanning software sometimes takes care of it on the fly. Images from digital cameras can also benefit from sharpening.

An image loses sharpness not only in the scanning process, but also in the output process. Halftones – almost anything on a printing press – and dithered graphics – such as those printed on ink-jet printers – are the worst offenders. But even continuous-tone devices, such as film recorders and dye-sublimation printers, reduce sharpness.

Remember, you cannot solve the problem of blurry scans by scanning at a higher resolution. And, while there's no way to bring an out-of-focus original back into focus, even a blurred original – such as a fast-moving subject – needs sharpening so it won't be blurred and soft.

To counteract the blurries in both the input and output stages, you need to sharpen your images. When it comes to sharpening, the key tool is Adobe Photoshop's Unsharp Mask filter, the master at making your images crisper – despite its counter-intuitive name.

The Unsharp Mask filter

The reason you can see these printed words so clearly is that they have well-defined edges. Our eyes are extremely good at discerning edges – sharp lines between one colour and another. The more marked the difference between two colours along an edge, the sharper an image, and the faster we understand what we're looking at.

The Unsharp Mask filter (Filter-Sharpen) compares each pixel in your image to its neighbouring pixels – the greater the contrast between two pixels, the more the program increases the contrast. This results in a halo effect around edges that appears to increase an image's sharpness (see "Behind the Unsharp Mask filter").

Flat out

The Unsharp Mask filter can also have the undesirable effect of exaggerating texture in flat areas, noise introduced by a scanner, and artifacts from JPEG compression.

Fortunately, the filter offers some controls to help you walk the fine line between sharp and ugly. The trick is to strike the right balance using the Amount, Radius, and Threshold controls in the Unsharp Mask dialogue box (see "The Simple art of sharpening").

When sharpening, you need to think about restoring sharpness lost in the image-

JOHN RITTER

Sharpening what you want

Sure, I said every image needs sharpening, but that doesn't mean you want to sharpen every pixel in an image. If you examine the individual channels of most RGB scans, you'll find that often the blue channel is by far the noisiest of the three. It's also usually the one with the least-important details, so in most cases only the red and green channels need sharpening. Perhaps using the Despeckle filter on the blue channel may help to even it out. This works best with lower Radius settings – 1.4 and under. Some people convert the image to Lab mode and then sharpen the Lightness channel, even though the mode changes can cause minor degradation.

Another way to sharpen part of an image is to do it through a mask, as shown in the example here. For instance, you may want a little additional sharpening in and around the eyes in a portrait, or you might want to avoid sharpening a picture's background in order to focus attention on a foreground object.

After duplicating the background layer and selecting what you do want to sharpen, click on the Add Layer Mask button (A) in the Layers palette. Feel free to touch up this mask with black and white paint to fine-tune the selection.

Run the Unsharp Mask filter on the duplicate layer – the image, not the mask. Only the part that is not masked appears sharpened. If the mask's edge is too hard, the transition between sharpened and unsharpened pixels will be obvious – you can use the Gaussian Blur filter on the layer mask to soften this transition.

To create a more severe contrast between foreground and background, I selected the background layer and softened it with the Gaussian Blur filter. B shows the picture before applying the filter, C after.

The simple art of sharpening

Many people get nervous when confronted with the Unsharp Mask filter for the first time. Don't worry – it's a simple three-step process. But, make sure to leave yourself an escape route by either working on a duplicate of your image, or archiving the unsharpened version first.

1 Open the Unsharp Mask filter's dialogue box (Filter-Sharpen). I like to start with a significant change, so I set the Amount control – the strength of the sharpening effect – to 200 per cent. I also set the Radius control – the size of the sharpening halo – to my image's resolution divided by 200. For instance, with a 300-pixels-per-inch image, I'd start with a Radius setting of 1.5 (300 over 200). I set the last control – Threshold – to four, which in effect tells Photoshop to ignore pixels that are less than four levels apart on the tonal scale.

If you select Preview mode, Photoshop shows you what your image is going to look like after you click on OK. It's important to view your image at 100%, since that's the most accurate view. The good news is, you don't have to close the dialogue box to do so, because you can zoom in and out from within the dialogue box.

2 Next, fine-tune the image. If it has a lot of detail – for example, a picture of tree limbs against the sky – you need to lower the Radius setting and increase the Amount setting. If it's an image with large objects that have slow colour transitions – say, a portrait or a picture 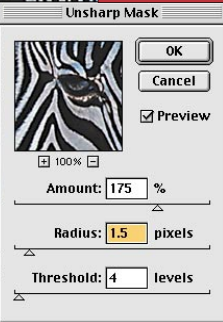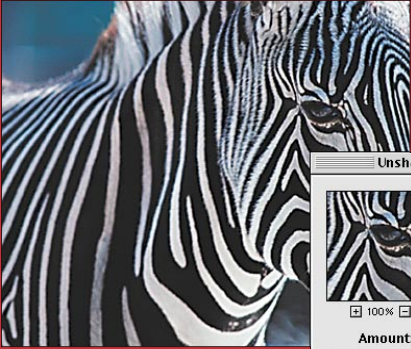of a field of grass – increasing Radius and decreasing Amount will probably improve your image the most. These two settings usually work like a see-saw – as you adjust one up, you should send the other down.

The Unsharp Mask filter accentuates noise – whether it's from JPEG artifacts, your scanner, or a dirty original. You can control this to some degree by increasing the Threshold value. However, if you're using Thresholds higher than eight or ten, you should probably start looking at other methods of controlling noise (see "Sharpening what you want").

3 Finally, feel free to throw all these rules out the window and use the settings that work best for your image. Don't be afraid to use a Radius setting as small as 0.3 or so, especially if you're producing images for the Web. Making the image sharp enough on your screen will translate to a sharp image on the viewer's screen.
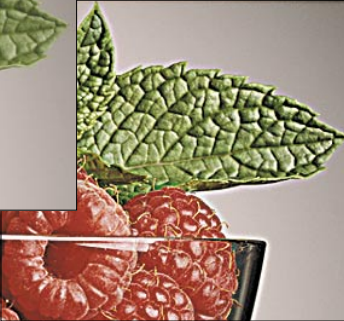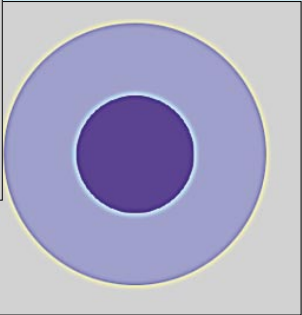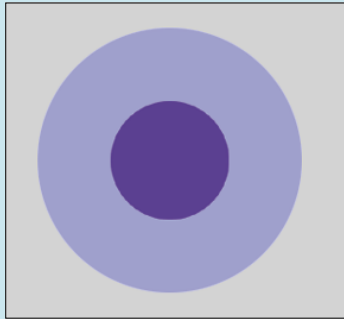
If you will be printing the image, in general the lower the halftone-screen frequency – or the lower the printer resolution – the larger you should make the radius. If your halo is much smaller than your halftone dot, it will simply disappear, and so will your sharpening. Note that there's really no way to get an accurate on-screen preview of how your sharpened image will look in print – the screen image is too different from the halftone output.

Sharp tip
Make a big change, then fine-tune it – change Amount to 200, then adjust up or down until the image looks right.

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acquisition process, and introducing extra sharpness to compensate for its loss during the output process.

The best you can get

For the highest-quality image, you need to know where your image is going before you sharpen it. Sharpening an image destined for newsprint is a different game from sharpening for the Web. Printed images, especially those at low halftone-screen frequencies (such as newsprint images), require more sharpening because subtle edge-halos get lost in the translation to halftone dots. On-screen images, however, often need just enough sharpening to off-set blurriness acquired at scan time. It's about getting the balance right.

Note, you should usually use the Unsharp Mask filter near the end of the image-correction process – after colour correction – but before you convert from RGB to CMYK or set your minimum highlight dots. If you sharpen afterward, the Unsharp Mask filter might create unwanted specular highlights – near-white pixels blown out to pure white.

Also, if you use the Image Size dialogue box to reduce the size of your image by more than about ten per cent, you'll probably need to run the Unsharp Mask filter again. That's because down-sampling softens the contrast between pixels.

Balancing act

The Unsharp Mask filter is a powerful tool. Used well, it can give your images an extra snap that makes them jump off the page. Used badly, it can produce an unpleasant high-contrast look. Applying the Unsharp Mask filter is definitely a skill that improves with experience. The more you experiment with the controls, the closer you'll bring your image to perfection. **MW**

David Blatner is a co-author of *Real World Photoshop 5* (Peachpit Press, 1999), including the version 5.5 update at www.peachpit.com/photoshop/.

Behind the Unsharp Mask filter

The Unsharp Mask filter can't actually make an image sharper – it just makes the image appear sharper by intelligently enhancing the contrast between pixels. This filter accentuates the transition between light and dark pixels at edges: the dark side becomes darker and the light side becomes lighter, creating a halo effect around an object's edges. Because Photoshop has to look at every pixel, applying the Unsharp Mask filter can take a long time, especially with large images.

Get a site in no time

Apple's iTools offer a quick and easy way to set up a Web site. By David Fanning

Nearly everybody has Internet access nowadays, and most people have free Web space included in the deal. However, relatively few people get around to doing anything with their space. Recent developments, such as Apple's iTools, give anybody a simple way of creating a Web site with no coding, formatting or special knowledge requirements. All you need is a computer running Mac OS 9, some pictures and around 20 minutes.

Something for nothing

iTools (**www.apple.com/uk/itools**) includes a service called iDisk, which offers 20MB of free space on Apple's Web servers.

One of the main drawbacks to using free Web space services such as iTools is the naff Web address you get lumbered with – fancy **http://homepage.mac.com/somevariationonwhat-everyournameis/index.html**? However, there's an easy way to get around that sort of elongated Web address by registering your own domain name. OK, it isn't free – but it's getting cheaper all the time.

If you want to make a Web home page like nobody else's, you need to use a Web-authoring application. There are several of these on the market. Adobe PageMill comes free with iBooks and iMacs. PageMill is fairly straightforward to use, and ideal for beginners. But it's fairly limited, and getting a bit long in the tooth. For those demanding more advanced Web-creation tools, Adobe GoLive and Macromedia Dreamweaver are also WYSIWYG Web editors. But it costs at least £200 for either of these programs.

If you don't really want to learn a new application, or just want to throw up some images to show far-flung relatives your new cat, there's now an even simpler way. Apple's iTools offers the quickest and easiest Web creation around. I'm going to show you how to create a good-looking Web site in 20 minutes or less.

If you're looking to build a site with mass appeal, then iTools won't cut the mustard. For example, there are no templates available from iTools to make a fan site. Apple has concentrated on creating
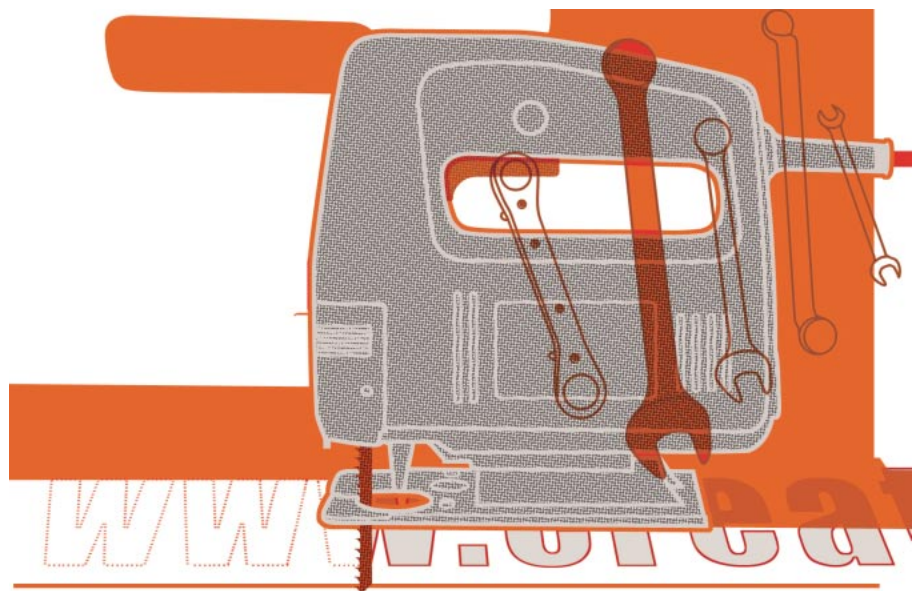
sites for family and friends, rather than the whole of the Internet. In a way, this takes some of the pressure off – if it's only holiday snaps, there's no need to think up a marketing strategy for a Web site.

There are 11 choices of templates in the HomePage section of iTools, covering subjects as diverse as baby announcements and homework projects. It would be nice if Apple added to the selection, though there is no sign of that happening yet.

To make this particular Web site, we will be using the 'Auto Photo Album' template with the HomePage iTool. If you haven't already signed up to iTools, download the iTools installer. It's available from the Apple Web site (**www.apple.com**), look under the iTools tab. Once the installer is downloaded, double-click on it. Then, fill in your details, choose a name and log-in and agree to Apple's terms and conditions. Once this is done, log in to iTools and begin building a Web site. Remember, the log-in will form your mac.com email address and part of your URL for your Web site, so choose carefully. MW

First get some pictures. The most convenient way of getting images onto a Mac is with a digital camera (**1**). If you don't have a digital camera, a scanner is the best option for inputing photo prints.

The pictures may need resizing, as high resolutions mean longer download times for site visitors – just about any image-editing software program will do this. Almost all digital cameras and scanners include capable software. The maximum image size is 800-x-600 pixels. Any larger, and most people will not be able to see the whole image without some of it falling off the side of the screen. Pixels are the little squares that can be seen when a graphics image is enlarged. The more pixels in an image, the better its resolution. Most people will be able see pictures at about 640-x-480 pixels.

The file format for the Web can be either JPEG (.jpg files) or GIF files. For photographs, use the JPEG format, as it gives the best compression ratios. You can set the compression quality from one to ten. In my example, I used number three – it gives good quality and a file size of around 40K to 50K. GIF is best for graphic images that use blocks of colour such as with company logos or cartoon images.

When the images are compressed, open iDisk – this is where you'll be storing your resized pics (**2**). Log in to iTools, click on the iDisk tab, and iDisk will mount on your desktop. It'll be named whatever your log-in is; in this case dfanning. Double-click the icon and when it opens various folders for pictures, movies and the like appear.

When iDisk is open, copy the images to the pictures folder. Make sure that the suffix of all the JPEG images is .jpg,

otherwise they won't work. When naming files, bear in mind that HomePage displays them in alphabetical order. If the images are from a digital camera, the file names are often numbers listed in numerical order, so just keep the original names.

With all the images in the pictures folder, go to the HomePage iTool (**3**). The template I've used is the 'Auto Photo Album'. Just click on the template and HomePage will look for pictures in your pictures folder. It takes each image and makes a thumbnail version of it, then lays out a page ready for titles and captions. Most of the donkey work associated with making a Web site is already done for you.

This part is very straight forward. Click each of the buttons marked edit in turn and fill in the blanks (**4**). Title the page and write a brief introduction, and then add captions to the pictures. With iTools, you can spend your time amusing your readers rather than struggling with HTML.

When happy with the page, preview it by clicking the button at the top of the page. Check for spelling mistakes, and then click publish. That's all there is to it – the page is now live online. The next page carries the Web address, and an opportunity to alert the media, or at least family and friends (**5**). Just type in their email addresses, and they'll receive a note telling them about your new site. Actually, it may work better to send your own message with the Web address because Apple sends something like an iCard, a picture of your message. This means that you can't just click on a link, but have to type it in. This has proved too much for some of my relatives, so I would stick to normal email.

1

2

3

4

5

The one thing that will label you something of an amateur is the long Web address. In the past, getting your own domain (**www.companyname.com**), was an expensive and complicated business. Some service providers charged a fortune for registration and commercial rates for hosting. In 1994 my dot com, for example, cost me almost £800. Now, it can cost as little as £5 a year for a .co.uk domain.

A quick search of the Internet throws up dozens of hosting companies willing to register a .co.uk or a .com. The rules vary, and the cheapest ones may have advertising displayed on your site, or other obligations and irritations. The more it costs, the less the host expects. Buying a domain name can be a confusing business, so check with the domain-name company, and be sure to get value for money. Find out what the service includes and any obligations attached. Often domain hosting doesn't include the actual Web space, so redirect hits need to be redirected to another site. In this case, of course, I have used Apple's free iDisk space.

1 Think of a name. All domain-hosting sites offer a search for available names. There will be different charges for .com and .co.uk domains. The .com domains are more expensive, but gives the advantage of the visitor being able to just type the owners name into the browser and hit return. A .co.uk domain needs the whole URL, including the www and the .co.uk. One good way to ensure a memorable domain is to use your own name.

2 Fill in the online forms and put your credit card to work. I'm using **www.itsbob.co.uk**. For £69 (including VAT) they'll host your domain free of advertising and obligation.
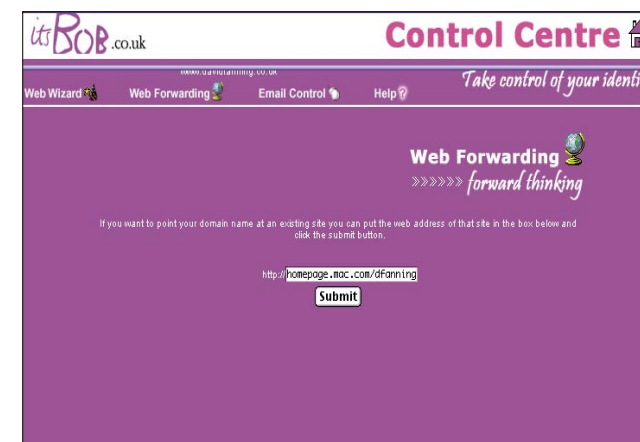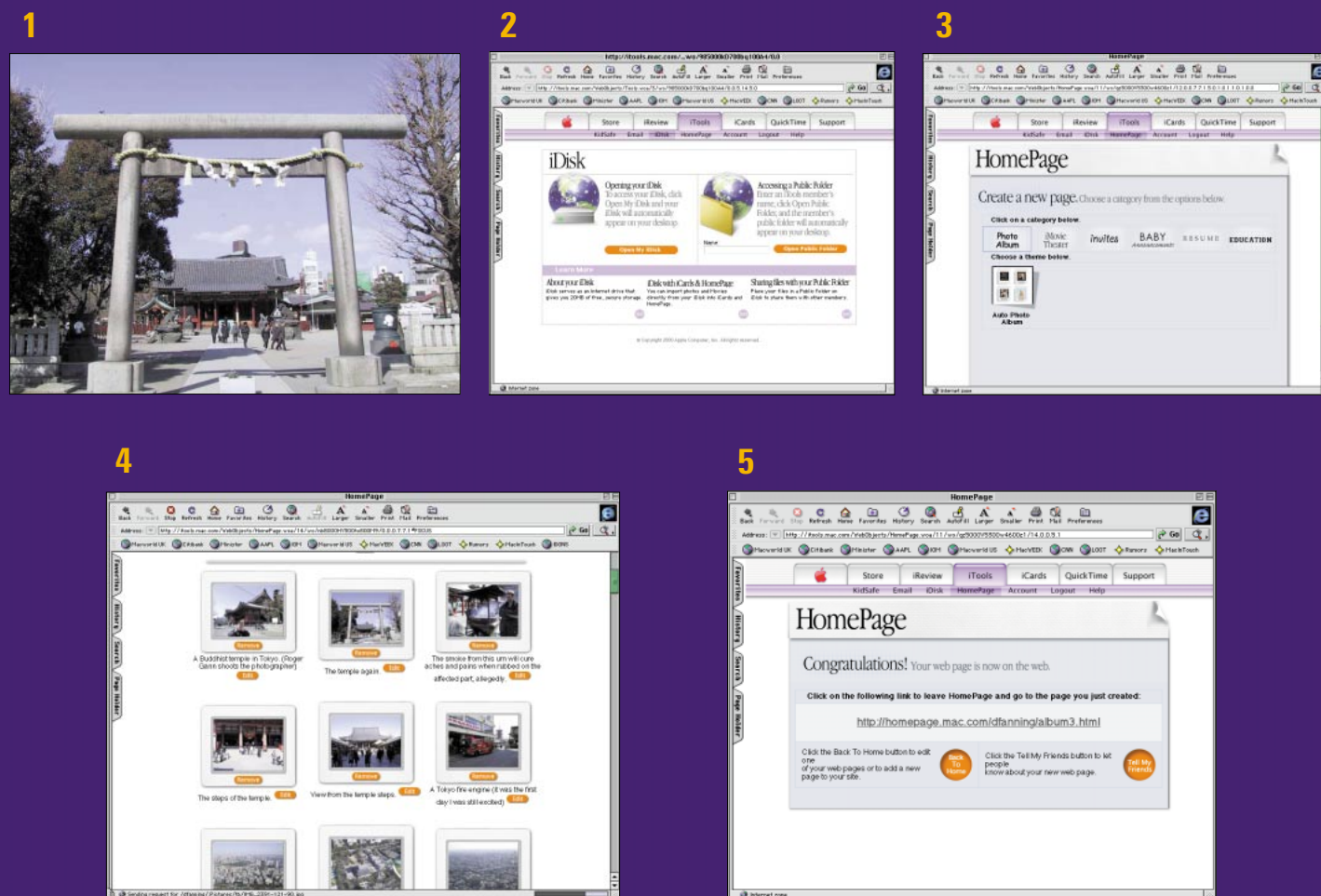
3 Log-in to your domain host and set up the Web and email forwarding. Some companies like It's Bob let customers handle this themselves with a simple form system. Others may require you to email instructions to change forwarding. In this case, I have aimed my domain at my iTools site.
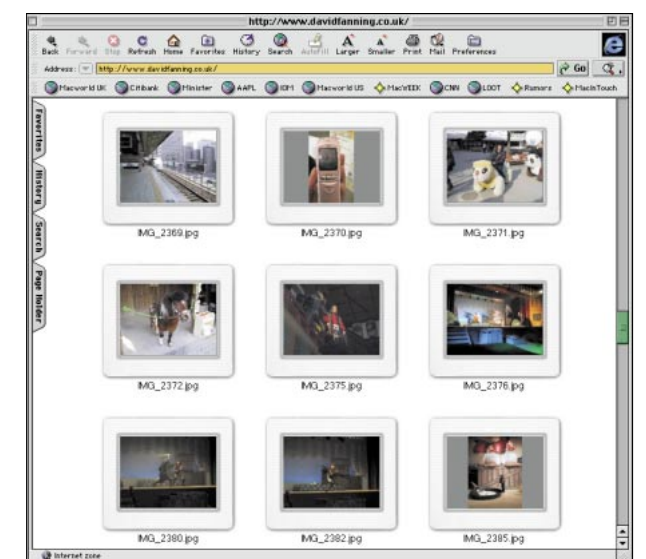
4 In a browser type in the URL, such as **www.davidfanning.co.uk**. This should go directly to your Web site without any pesky long URLs. Everybody will think you're an HTML genius.

Stay sharp

Photoshop's Unsharp Mask filter is vital for digital imaging. By David Blatner

No matter how good your scanner, or how crisp your original, you're certain to lose some sharpness when you digitize an image. Images from low-end flatbed scanners always need a considerable amount of sharpening. Even scans from high-end scanners need sharpening – though scanning software sometimes takes care of it on the fly. Images from digital cameras can also benefit from sharpening.

An image loses sharpness not only in the scanning process, but also in the output process. Halftones – almost anything on a printing press – and dithered graphics – such as those printed on ink-jet printers – are the worst offenders. But even continuous-tone devices, such as film recorders and dye-sublimation printers, reduce sharpness.

Remember, you cannot solve the problem of blurry scans by scanning at a higher resolution. And, while there's no way to bring an out-of-focus original back into focus, even a blurred original – such as a fast-moving subject – needs sharpening so it won't be blurred and soft.

To counteract the blurries in both the input and output stages, you need to sharpen your images. When it comes to sharpening, the key tool is Adobe Photoshop's Unsharp Mask filter, the master at making your images crisper – despite its counter-intuitive name.

The Unsharp Mask filter

The reason you can see these printed words so clearly is that they have well-defined edges. Our eyes are extremely good at discerning edges – sharp lines between one colour and another. The more marked the difference between two colours along an edge, the sharper an image, and the faster we understand what we're looking at.

The Unsharp Mask filter (Filter-Sharpen) compares each pixel in your image to its neighbouring pixels – the greater the contrast between two pixels, the more the program increases the contrast. This results in a halo effect around edges that appears to increase an image's sharpness (see "Behind the Unsharp Mask filter").

Flat out

The Unsharp Mask filter can also have the undesirable effect of exaggerating texture in flat areas, noise introduced by a scanner, and artifacts from JPEG compression.

Fortunately, the filter offers some controls to help you walk the fine line between sharp and ugly. The trick is to strike the right balance using the Amount, Radius, and Threshold controls in the Unsharp Mask dialogue box (see "The Simple art of sharpening").

When sharpening, you need to think about restoring sharpness lost in the image-

JOHN RITTER

Sharpening what you want

S ure, I said every image needs sharpening, but that doesn't mean you want to sharpen every pixel in an image. If you examine the individual channels of most RGB scans, you'll find that often the blue channel is by far the noisiest of the three. It's also usually the one with the least-important details, so in most cases only the red and green channels need sharpening. Perhaps using the Despeckle filter on the blue channel may help to even it out. This works best with lower Radius settings – 1.4 and under. Some people convert the image to Lab mode and then sharpen the Lightness channel, even though the mode changes can cause minor degradation.

Another way to sharpen part of an image is to do it through a mask, as shown in the example here. For instance, you may want a little additional sharpening in and around the eyes in a portrait, or you might want to avoid sharpening a picture's background in order to focus attention on a foreground object.

After duplicating the background layer and selecting what you do want to sharpen, click on the Add Layer Mask button (A) in the Layers palette. Feel free to touch up this mask with black and white paint to fine-tune the selection.

Run the Unsharp Mask filter on the duplicate layer – the image, not the mask. Only the part that is not masked appears sharpened. If the mask's edge is too hard, the transition between sharpened and unsharpened pixels will be obvious – you can use the Gaussian Blur filter on the layer mask to soften this transition.

To create a more severe contrast between foreground and background, I selected the background layer and softened it with the Gaussian Blur filter. B shows the picture before applying the filter, C after.

The simple art of sharpening

M any people get nervous when confronted with the Unsharp Mask filter for the first time. Don't worry – it's a simple three-step process. But, make sure to leave yourself an escape route by either working on a duplicate of your image, or archiving the unsharpened version first.

1 Open the Unsharp Mask filter's dialogue box (Filter-Sharpen). I like to start with a significant change, so I set the Amount control – the strength of the sharpening effect – to 200 per cent. I also set the Radius control – the size of the sharpening halo – to my image's resolution divided by 200. For instance, with a 300-pixels-per-inch image, I'd start with a Radius setting of 1.5 (300 over 200). I set the last control – Threshold – to four, which in effect tells Photoshop to ignore pixels that are less than four levels apart on the tonal scale.

If you select Preview mode, Photoshop shows you what your image is going to look like after you click on OK. It's important to view your image at 100%, since that's the most accurate view. The good news is, you don't have to close the dialogue box to do so, because you can zoom in and out from within the dialogue box.

2 Next, fine-tune the image. If it has a lot of detail – for example, a picture of tree limbs against the sky – you need to lower the Radius setting and increase the Amount setting. If it's an image with large objects that have slow colour transitions – say, a portrait or a picture of a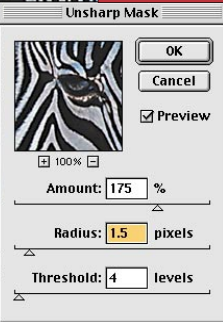 field of grass – increasing Radius and decreasing Amount will probably improve your image the most. These two settings usually work like a see-saw – as you adjust one up, you should send the other down.

The Unsharp Mask filter accentuates noise – whether it's from JPEG artifacts, your scanner, or a dirty original. You can control this to some degree by increasing the Threshold value. However, if you're using Thresholds higher than eight or ten, you should probably start looking at other methods of controlling noise (see "Sharpening what you want").

3 Finally, feel free to throw all these rules out the window and use the settings that work best for your image. Don't be afraid to use a Radius setting as small as 0.3 or so, especially if you're producing images for the Web. Making the image sharp enough on your screen will translate to a sharp image on the viewer's screen.
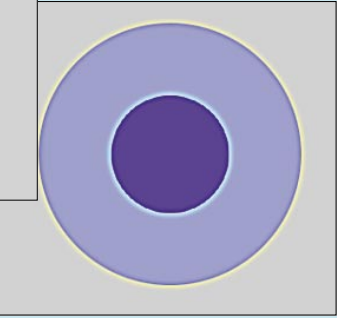
If you will be printing the image, in general the lower the halftone-screen frequency – or the lower the printer resolution – the larger you should make the radius. If your halo is much smaller than your halftone dot, it will simply disappear, and so will your sharpening. Note that there's really no way to get an accurate on-screen preview of how your sharpened image will look in print – the screen image is too different from the halftone output.

Sharp tip
Make a big change, then fine-tune it – change Amount to 200, then adjust up or down until the image looks right.

The best you can get
For the highest-quality image, you need to know where your image is going before you sharpen it. Sharpening an image destined for newsprint is a different game from sharpening for the Web. Printed images, especially those at low halftone-screen frequencies (such as newsprint images), require more sharpening because subtle edge-halos get lost in the translation to halftone dots. On-screen images, however, often need just enough sharpening to off-set blurriness acquired at scan time. It's about getting the balance right.

Note, you should usually use the Unsharp Mask filter near the end of the image-correction process – after colour correction – but before you convert from RGB to CMYK or set your minimum highlight dots. If you sharpen afterward, the Unsharp Mask filter might create acquisition process, and introducing extra sharpness to compensate for its loss during the output process.

unwanted specular highlights – near-white pixels blown out to pure white.

Also, if you use the Image Size dialogue box to reduce the size of your image by more than about ten per cent, you'll probably need to run the Unsharp Mask filter again. That's because down-sampling softens the contrast between pixels.

Balancing act
The Unsharp Mask filter is a powerful tool. Used well, it can give your images an extra snap that makes them jump off the page. Used badly, it can produce an unpleasant high-contrast look. Applying the Unsharp Mask filter is definitely a skill that improves with experience. The more you experiment with the controls, the closer you'll bring your image to perfection. **MW**

David Blatner is a co-author of *Real World Photoshop 5* (Peachpit Press, 1999), including the version 5.5 update at www.peachpit.com/photoshop/.

Behind the Unsharp Mask filter

T he Unsharp Mask filter can't actually make an image sharper – it just makes the image appear sharper by intelligently enhancing the contrast between pixels. This filter accentuates the transition between light and dark pixels at edges: the dark side becomes darker and the light side becomes lighter, creating a halo effect around an object's edges. Because Photoshop has to look at every pixel, applying the Unsharp Mask filter can take a long time, especially with large images.

Swat HTML bugs

Stop bugs creeping into your HTML codes. By Lisa Schmieser

There are all kinds of ways that bugs can creep into your Web pages. The small font that looks so clean on a PC may look tiny on a Mac. The spacer rows you added between a page's sections may disappear in Netscape Navigator. Or, the precisely proportioned headlines and sub-headlines on a page (such as **<font size=4>**, **<font size=3>**, or **<font size=2>**) might look different on different machines.

It's easy to assume that the cause lies in your HTML-writing skills. But sometimes it's the browser's fault. Browsers process and read HTML differently, and that can affect the way your page renders. In addition, users may have adjusted their browsers' font settings – some people prefer to read everything in 16-point Courier – and that can throw your designs out-of-whack.

Web developers face the challenge of building pages that anyone, using any browser on any platform, can read. So how can you do that without driving yourself buggy? It's easy – remember what the biggest rendering bugs are and work around them. This article identifies some of the most common problems, and shows how to write HTML around them. I've included lines of HTML to illustrate my points, but if you want to see the complete code, go to **www.macworld.com /2000/04/create/browserbugs.html**.

Problem: inconsistent fonts
Users muck around with their browsers' font settings for a couple of reasons – legions of Web developers have fallen in love with small fonts, and Microsoft Internet Explorer has added the Larger and Smaller font buttons to the browser tool bar. As a result, plenty of Web visitors are undoing designers' itty-bitty font specifications by clicking on the Larger button until they can read the text. This can throw a layout badly out of proportion.

Solution: use flexible HTML tags
The only way you can absolutely guarantee consistent text appearance in your visitors' browsers is to turn each page into one big GIF file – highly impractical. A more
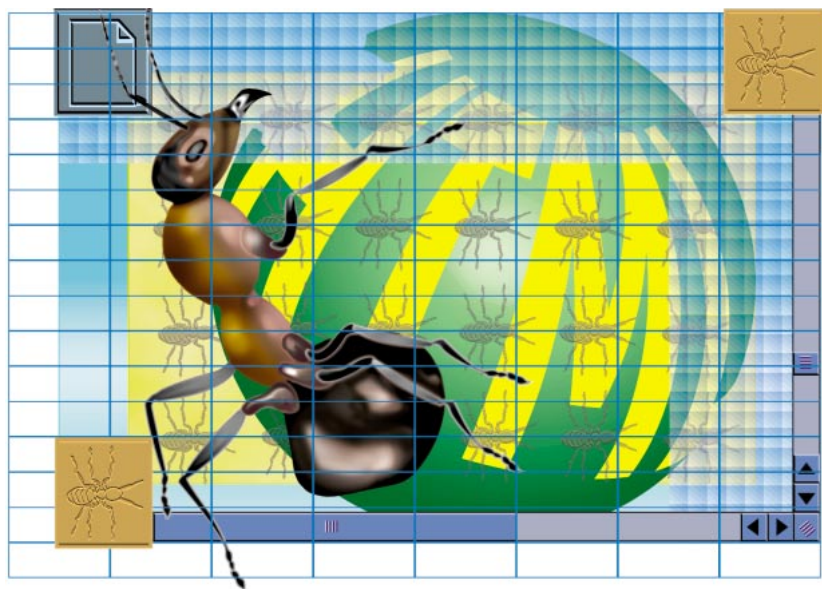
realistic solution is to prevent font mishaps by simplifying your HTML. If you want small text, use the **<small>** tag. A browser will then scale the text relative to a user's default font. For instance, if the default font is 12-point, the small font will be 10-point.

If you want to incorporate a variety of font sizes in a page, use the **<big>** and **<small>** tags as HTML headings. These varying sizes scale proportionally to the visitor's default browser settings, guaranteeing preservation of the general proportions of a layout, no matter how large or small a visitor's font settings. Tags such as **<font size="+2">** and **<font size="-1">** don't scale nearly so elegantly.

Problem: migrating layout
In theory, the first element of a Web page – whether it's a table, a graphic, or something else – should use the upper-left corner of a browser window as the point of origin. That's true, but it's not exact. Browsers add space that makes your layout migrate several pixels away from the corner (see "Drifting layout"). If it's important that your layout starts in the corner, without any spaces above or to the left, this browser

GEORGINA WATSON

To take out unwanted space between cell content, follow these steps. For the complete before-and-after HTML, go to **www.macworld.co.uk/create/web**.

I. Change the table width to reflect the table's contents.

2. Move the valign attribute to the table row, since it's consistent for each cell, and set images in the top row to align vertically with the bottom of the row:

```
<table width="360" cellspacing="0"
        cellpadding="0" border="0">
<tr valign="bottom"> </tr>
<tr valign="top"> </tr>
</table>
```

3. Align the cells by pushing them to the right if they're on the left-hand side, and to the left if they're on the right-hand side.

Before
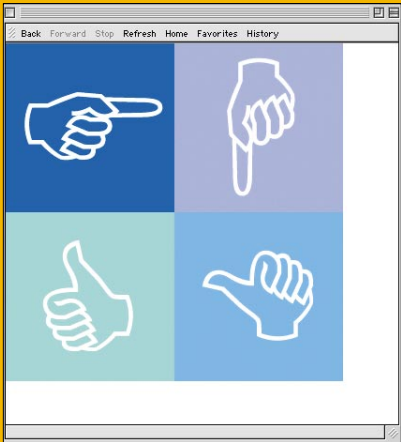
After

Making sure that visitors to your site see the exact design you intended is tricky. Sometimes creating a design that can change depending on who's visiting your site is easier. In the case of tables, try making a row of cells that shrink.

In this example, I wanted to have a table with white space on the left-hand side, so I formatted the left-hand column like this: **<td width="20"> </td>**. By writing the code like this, I built in flexibility – the column will either be 20 pixels wide or shrink to the size of its contents

– one non-breaking space ( ). The size of the non-breaking space depends on the font-size settings on the user's browser.

Browsers that read and set cell sizes based on their specific width will set the column width to 20 pixels – browsers that render cell sizes based on the width of the cell content alone will shrink the column to the size of the non-breaking space. Since the purpose of the column is to provide a buffer of white space on the left-hand side of the page, the page renders acceptably on any browser.

Outsmart the Browser
Even a browser that shrinks the left column in this table won't ruin the layout. To make sure the column doesn't disappear, though, you need to insert a non-breaking space.

Drifting layout
To prevent browsers from shifting your layout several pixels down and over (above), add margin attributes (marginwidth, marginheight, leftmargin, topmargin) to your HTML code (below).

off-set could throw your whole design off.

The amount of extra space a browser adds to your layout depends on the user's platform – on the Mac, whether you're viewing a page with Navigator or Internet Explorer, the layout will move eight pixels down and eight pixels to the right. PC users have it even worse – the offset in Internet Explorer for the PC is ten pixels down and 15 to the right.

Solution: add margin attributes
Browser offset is one of the easier design problems to work around – just add margin attributes to your **<body>** tag. You will need four of them.

marginwidth determines how many pixels of space are between the left edge of a browser window, and the items within an HTML document's body.

marginheight sets the placement of items relative to the top of the browser.

leftmargin tells the browser the pixel width of the left margin (similar to the marginwidth attribute).

topmargin tells the browser the pixel width of the top margin (similar to the marginheight attribute).

Even though there seems to be duplication in the attribute tags, you need all four because Internet Explorer 3.0 supports the marginwidth and marginheight tags while the 4.0 browsers support the leftmargin and topmargin tags.

Unfortunately, if your users access your site with Navigator 3.0, you're out of luck –

there's no way to get rid of offset with that browser.

Problem: shrinking table cells
One of the most common complaints about tables is that table cells don't maintain their size. This tends to affect Navigator viewers more often than their Internet Explorer counterparts. When you write a table, you should set both the width of the table and the widths of its constituent cells – this helps the table render quickly, because the browser knows how wide every cell must be. Otherwise, it has to read the table contents and try to scale the cells proportionally.

But Navigator may still run into some problems with your tables, sometimes even shrinking cells. When a cell's content isn't as wide as the cell itself, the browser snaps the cell to the width of the content.

Solution 1: correct right size One way to make sure a cell doesn't shrink is to fill it with content that will force a cell to maintain its size, as in the sample cells following.

Sample 1: **<td width="20">   </td>**

Sample 2: **<td width="400"><img src='banner.gif' width="400"></td>**

The first sample shows how to use non-breaking spaces ( ), which are handy if you're using a cell for space, or for a margin. The second sample contains a graphic that's the same width as the cell.

Solution 2: make layout flexible

The second way to step around the shrinking-cell problem is to modify your layout so that precise cell size doesn't matter. See "The flexible layout" for an example of a table that can expand and contract as needed.

Problem: misaligned cell content
Another common complaint about tables is that the contents of a cell don't align as intended. For instance, you may want the contents of two cells to adjoin, but you end up with white space between cells.

Solution 1: table attributes
Browsers default to the following attributes: table cellpadding 1 pixel, table cellspacing 1 pixel, valign=top, and align=left. These defaults can mess up a table's appearance, so it's up to you to specify the right values for your layout. (See "Malignant alignment" for an example of how to adjust attributes.)

Solution 2: compact your code
After you've tweaked your table attributes, the end result may work beautifully in Internet Explorer, but still go awry in Navigator – because Navigator inserts extra white space at line breaks and returns.

You can eliminate this white space by compacting the code – eliminating extra line breaks, hard returns, and tabs. Compacting doesn't affect the format of text within **<body>** tags or **<table>** tags – it just cleans up the spaces between individual tags. Here's an example of what compacted code looks like:

```
<! doctype html public "-//w3c//dtd html 4.0
transitional//en" "http://
    www.w3.org/tr/rec-html40/loose.dtd">
    <html><head><title>table test #2
    </title></head><body bgcolor=
    "#FFFFFF" marginheight="0"
marginwidth="0" leftmargin="0"
topmargin="0"><table width="360"
cellspacing="0" cellpadding="0" border="0"><tr
valign="bottom">
    <!—put table content here—>
    </tr></table></body></html>
```

The real secret to writing bug-free pages is simple – avoid building complicated pages. Using HTML as a design language to control the visual attributes of a page is a tricky at best, and the more tricks you use, the more likely you are to get a bug.

This isn't meant to discourage you from pushing design limits with HTML. If you're truly committed to executing cutting-edge design online, however, you might want to consider using Macromedia Flash or some other technology that gives you a great deal of control over the visual appearance of your Web pages.

On the other hand, there's a certain appeal in writing simple HTML – you can concentrate on making your pages look attractive – and rest assured that they'll look consistent across different browsers. **MW**

Lisa Schmieser is the author of
***The Web Design Templates Sourcebook* (New Riders, 1997).**
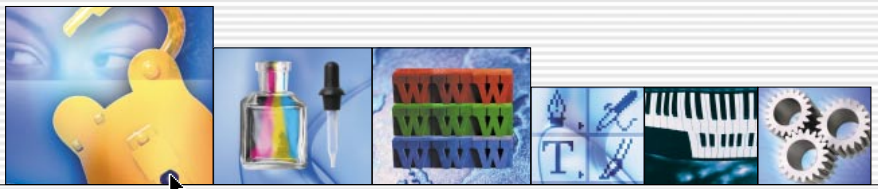
Double QuickTime

If you're going to waste time at work — do it quickly. **By Joseph Schorr**

OK, it's official: I now watch more movie trailers on the screen of my PowerBook than I do at my local multiplex. I blame this phenomenon not on a lack of self-control, but on the irresistible lure of the Internet and QuickTime 4, which together allow those movie trailers to come streaming right to me over the phone line.

Most Mac movie watching these days happens in QuickTime Player, the movie-playing app that comes with every new Mac – those of you with older systems can download QuickTime 4.1 from **www.apple.com/quicktime/**. Unlike its predecessor, MoviePlayer 3.0, QuickTime Player doesn't just play movies, it also lets you bookmark favourites – both locally and online – for quick access and perform other movie-watching tricks.

QuickTime Player has a quirky, non-standard Mac interface, but it's replete with time-saving shortcuts and hidden features. Read on to find the best of them. After all, if you're going to waste company time watching movie previews, you might as well do it with a pro's prowess.

Organize your drawer

One of QuickTime Player's most convenient features is the Favorites Drawer – where you can create links to QuickTime content on the Internet, as well as to movies stored on your own computer or network. The drawer, which slides down from the bottom of the window, comes with 15 preset URLs that link to sites such as HBO, NPR, and Apple's QuickTime Showcase (offering a link to popular movie trailers).

Squander time efficiently

QuickTime Player is slick – but, at times all those buttons and indicators can be more hindrance than help. If you want to zip through movie trailers and BBC news items at peak efficiency, there are keyboard equivalents for most QuickTime Player functions. Many of these shortcuts work with QuickTime Plugin 4.x, which can play QuickTime movies in Microsoft Internet Explorer or Netscape Navigator.

A To start playing a movie, click on the big round play button, or simply double-click in the middle of the movie screen. From the keyboard, press the return key, the spacebar, or ⌘-right arrow. Press ⌘-left arrow to play a movie backward at normal speed.

B To stop a movie, click on the pause button; press the spacebar, the return key, or ⌘-period; or press the right- or left-arrow key once.

C To step through a movie one frame at a time, click on the forward or back button, or press the right- or left-arrow key repeatedly.

D To adjust the sound level, drag the volume-control dial, or press the "up" arrow to increase volume, or the "down" arrow to decrease it.

E To turn the sound off completely, click once on the white speaker icon near the volume-control dial, or press option-down arrow. For maximum sound volume, press option-up arrow.

F To skip to the beginning, or end of a movie, click on these buttons or press option-left arrow or option-right arrow.

G To open or close the Favorites Drawer, double-click on the drawer's grooved handle or press ⌘-right bracket (]).

H To expand or shrink the movie window proportionally, drag the resize handle at the bottom right. Shift-drag to scale the window non-proportionally.

I These fast-forward and rewind buttons have no keyboard equivalents, but they are useful for skipping through a movie at high speed with sound.

J To skip part of a movie, drag the diamond along the time bar. The counter at the left indicates the currently displayed minute, second, and frame.

K To get information about a movie's file size, length, and so on, click on the button with the lowercase i or press ⌘-I.

L To display or hide the dark-gray panel containing the navigation and sound controls, click on the button with four dots.
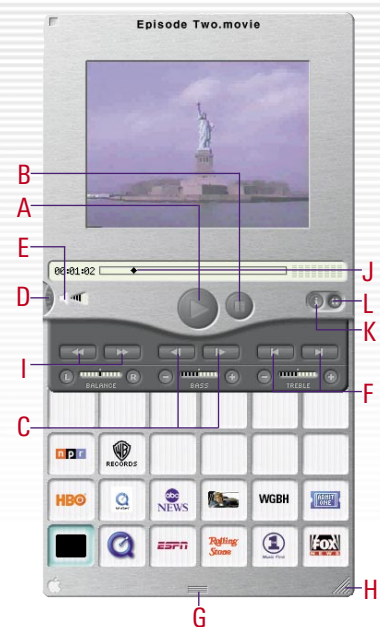
Disk-image files

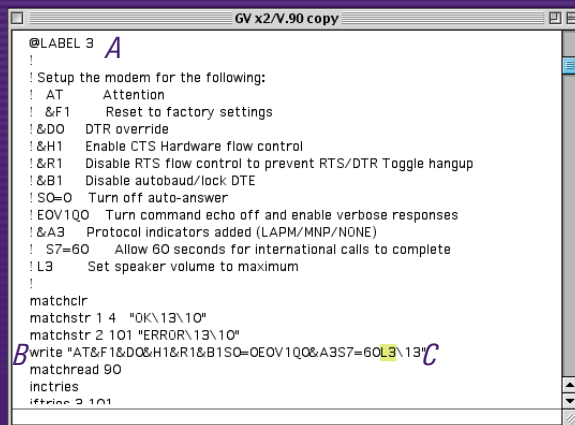**TIP** Need to install software from a floppy to a Mac that lacks a floppy drive? Tired of inserting a CD to play a game or consult an encyclopedia? You can solve these problems with disk-image files. For example, when Stephen Taylor got a new G4 at work, he wanted to install QuarkXPress on it. His version of the software came on CD, but required an installation floppy; of course, the G4 has no floppy drive. No problem – he inserted the installation floppy into an older Mac, and made a disk image using the Disk Copy utility that comes with the Mac OS. The latest version of Disk Copy is available from Apple's Software Library, http://asu.info.apple.com). He then copied the disk-image file to the G4 via the local network. After mounting the disk-image file as a disk on the G4 – again using Disk Copy – he was able to proceed with the installation.

If your new Mac isn't on a local network, you can make the disk-image file on an older Mac that has Internet access, then either email the file to the new Mac, or transfer the file via one of the free storage sites on the Web, such as www.freemacspace.com or www.aladdinsys.com/freedrive/.

Daniel Vanwie uses the £25 ShrinkWrap utility from Aladdin Systems (Softline, 01372 726 333) to create compressed, unencrypted, self-mounting disk-image files – with the extension .smi – from CD-ROMs.

To make the CD image easy to use, record a simple AppleScript program that mounts the CD image as a disk, and launches the application with one double-click. Start by opening Script Editor, a utility that comes with the Mac OS, and clicking the Record button in a new script window. Switch to the Finder, open the CD image, and then open the application.

Switch back to Script Editor and click the Stop button. The following is an example of a recorded script that mounts a SimCity 3000 CD image (SimCity3000.smi) and then opens the SimCity application (SC3 1):

GV x2/V.90 copy

```
@LABEL 3                                              A
!
! Setup the modem for the following:
!   AT      Attention
!   &F1     Reset to factory settings
! &DO     DTR override
! &H1     Enable CTS Hardware flow control
! &R1     Disable RTS flow control to prevent RTS/DTR Toggle hangup
! &B1     Disable autobaud/lock DTE
! SO=O    Turn off auto-answer
! EOV1QO   Turn command echo off and enable verbose responses
! &A3     Protocol indicators added (LAPM/MNP/NONE)
! S7=6O    Allow 6O seconds for international calls to complete
! L3      Set speaker volume to maximum
!
matchclr
matchstr 1 4  "OK\13\1O"
matchstr 2 1O1 "ERROR\13\1O"
 B write "AT&F1&DO&H1&R1&B1SO=OEOV1QO&A3S7=6OL3\13"C
matchread 9O
inctries
iftries 3 1O1
```

Edit Modem Scripts
You can edit a modem script with a text editor such as SimpleText. The modem-initialization string comes several lines below @LABEL 3 (A) and begins with the word write, not an exclamation point (B). Here, the command L3 (C) sets the modem speaker volume to its maximum level.

```
tell application "Finder"
activate
select file "SimCity3000.smi" of folder "SimCity
3000" of folder "Applications" of startup disk
open selection
select file "SC3 1" of folder "SimCity 3000" of
folder "Applications" of startup disk
open selection
end tell
```

To turn the script into a program, choose Save As from the File menu, in the Save dialogue box, set the Kind option to Application and turn on Never Show Startup Screen. To mount the CD image and start SimCity, double-click the icon that Script Editor creates.

Inbound from the Internet

Q I use the gateway software IPNetRouter from Sustainable Softworks (www.sustworks.com) to share an Internet connection among the computers on my local network. The gateway creates a firewall that stops computers on the Internet from accessing my local network. Can I forward incoming packets to one computer so that it could serve Web pages?
David Kephart

A Many Internet-sharing gateways can be configured to permit computers on the Internet to access a computer on your local network for a specific purpose, such as serving Web pages. The sidebar "Inbound port mapping" illustrates the set-up for IPNetRouter and another popular software gateway, Vicomsoft SoftRouter Plus (www.vicomsoft.com).

Set modem speaker volume

Q Can I edit a modem script to control the modem speaker volume? I'd like several scripts that set the volume to off and maximum.
Bud Weber

A You can edit modem scripts with any word processor or text editor, including SimpleText. A modem-script file contains plain text, though its type code is mlts, not TEXT. First make a copy of the script you want to modify. Then use a word processor, or text editor, that can open any type of file, such as the £87 (excluding VAT) BBEdit, or free BBEdit Lite from Bare Bones Software (www.barebones.com). Or you can use a utility such as Daniel Azuma's $10 shareware FileTyper (www.ugcs.caltech.edu/~dazuma/) to change the file type code to TEXT, and then open the copy with any word processor or text editor.

Scroll through the script until you find the line @LABEL 3.

Several lines below this, look for a line that begins write "AT, followed by a bunch of letters, numbers, and symbols. This is the modem-initialization string of commands (see "Edit Modem Scripts"). This string can go to the modem piecemeal, in which case the commands appear on several lines – making them easier to decipher. Lines that begin with an exclamation point, however, are not part of the initialization string. They are treated as comments, not as commands.
You don't need to know what all of the commands mean, but you can look them up in your modem's documentation.

To set the modem volume to maximum, insert the command L3 just before \13 at the end of the initialization string. To set the volume to medium, insert L2; for low volume, insert L1; and for lowest volume, insert LO. You could insert another modem command to control the speaker: MO to turn it off, M1 to turn it on. However, it's easier to simply set the Sound option in the Modem control panel to On or Off. Another part of the modem script inspects this setting and issues an MO or M1 command.

When you finish editing the initialization string, save and close the file. If you had to change the file's type code to TEXT to work with it, change it back.

Moving paragraphs with keystroke

TIP In AppleWorks (or ClarisWorks 5), you can move a paragraph or paragraphs containing selected text or the insertion point up or down one paragraph by pressing control-up arrow or control-down arrow, respectively.
Ben Rosenthal

Orderly MP3 playlist

TIP After ripping a CD to MP3 files, you may wish to add these files to a playlist in the same order as on the CD. Assuming your encoder handles them sequentially – most do – simply view the folder containing the MP3 files as a list, sorted by Date Modified Then select all the files and drag them to the playlist.
Nicholas Ragaz

Inbound port mapping

TIP You can configure the Internet-sharing gateways IPNetRouter and Vicomsoft SoftRouter Plus to route specific types of incoming traffic to particular computers. Here, one computer (IP address 192.168.0.3) is set to get incoming FTP traffic (ports 20 and 21) and Timbuktu traffic (ports 407 and 1417 to 1420). Another, (IP address 192.168.0.2) is being set up to get Web server traffic (port 80).

Configuring IPNet
Choose Port Mapping from the Window menu. In the Configure Entry section of the Port Mapping window, leave the first pop-up menu set to Any (A) and leave the first IP address box (B) alone – it should contain the public IP address your ISP assigned. Use the second pop-up menu (C) to set the TCP (or other protocol) port for the service, or type the port number directly (D). For example, for a Web server, choose http from the menu, or enter 80 in the text box. If the service uses a range of port numbers, such as 20 and 21 for FTP, type

the first and last port numbers, separated by a hyphen. Next, select the second IP address box (E), and type the IP address of the local computer that will provide the service. Make sure its port number is correct (F) – generally it should be the same as the port number to the right of the public IP address (D). You can ignore the entry box for Age (G), but leave the Perm. option (H) turned on to retain this mapping when you quit IPNet-Router. Don't turn on the Static option (I) unless your ISP has assigned you a static IP address. You probably don't have a static IP address unless you connect via cable modem or DSL. Click Add to add the port mapping to the table at the top of the window.

Configuring Vicomsoft SoftRouter Plus
Choose Inbound Mapping from the Network menu. Click New Host (J) and type the IP address of the local computer that will provide the Internet service. Use the pop-up menus (K) to specify a range of TCP port numbers for the service, or enter the numbers directly (L).
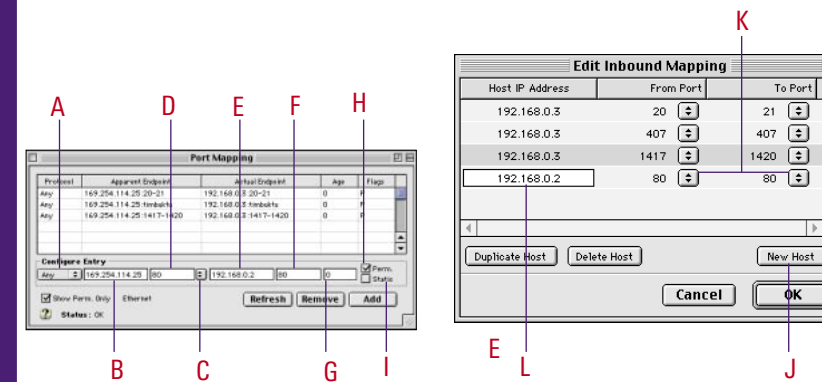
Managing movies
Some presets open streaming video or audio directly in QuickTime Player. Others launch your browser and open Web pages from which you can access a variety of audio and video clips. Here are a few tips for managing your drawerful of movies.
■ To open or close the Favorites Drawer, press ⌘-right bracket (]) or double-click on the grooved handle at the bottom centre of the drawer. You can open the drawer as wide as you want by dragging its bottom edge.
■ To add any movie currently open in QuickTime Player to the Favorites Drawer, press ⌘-D. You can add only movies actually open in the player, not Web pages that contain movies. To save those pages, bookmark them in your browser. To add movie files you've

stored locally, drag-&-drop them onto an open slot in the drawer.
■ To rearrange items in the drawer, drag their icons to different slots. It's best to drop the icons onto open slots, since dragging a new favourite to an occupied slot removes the old one. Changing the order of icons in the drawer changes the order of items in the Favorites menu. And, switching the order of links in the Favorites menu – via the Organize Favorites command – rearranges them in the drawer.
■ To remove a link, drag its icon from the drawer to the Trash.
■ You can create a Favorite Shortcut file – a stand-alone link to a movie – by dragging an icon from the Favorites Drawer to the desktop. The shortcut works like an alias – double-clicking on it opens the linked movie and creates an Internet connection if necessary.

Easy reader
Crack open a text file with QuickTime Player and it flashes the contents back to you in stark white on black, one line at a time.

The QuickTime TelePrompTer
The QuickTime Player application may seem like a one-trick pony. Its intended function, after all, is simply to play QuickTime movies. But lurking beneath that high-tech exterior are weird and wild functions – the automated TelePrompTer, for example, not the most usefull function, but worth look.
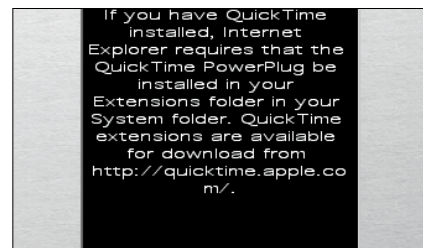
Here's how this feature works: drag a plain text file – one whose file type is TEXT – into the Favorites Drawer. Click on the file's icon in the drawer to open it in QuickTime Player. This is the only way to open a text file in the player; the Open command won't work. The first line of text from the file appears within the movie screen in white Geneva text on a black background (see "Easy reader").

Now it gets bizarre. Click on the play button and the player displays the

contents of the file one line at a time, like a TelePrompTer, spending two seconds on each line. You can't control scrolling speed – unless you click on the fast-forward button on the control panel – but you can start and stop the flow of text using standard playback commands.

To make the text bigger, enlarge the QuickTime Player window by dragging its lower right corner; the text scales proportionally with the movie screen and remains readable. Granted, this oddball feature won't make you more productive at the office – but let's face it, neither will the latest streaming video from MTV, or the trailer for *Mission Impossible 2*. You want productivity? Launch Excel. **MW**

Joseph Schorr co-authored *Macworld Mac Secrets* (IDG Books Worldwide, 1999).

Desktop critic

DAVID POGUE is the author of *iMac for Dummies* (IDG Books Worldwide, 1998) and the *Great Macintosh Easter Egg Hunt* (Berkely Books 1998). He also wrote *Macs for Dummies,* fifth edition, updated for Mac OS 8, *The Weird Wide Web* (IDG Books Worldwide, 1997) and *The Microsloth Joke Book* (Berkeley, 1997).

Licence to Bill

Every time you try to install a piece of software or download something from the Internet, you click past a screen of legalese known as the software licence agreement. You can't get past it without clicking on one of two buttons: Accept or Decline. Nobody actually reads this document, of course. At this point, you blindly click on Accept. After paying $300 or $800 for a piece of software, you just want to get the thing installed.

So I had something of a shock when, seized by a rare wave of boredom, I actually sat down to read one of these things in its entirety. Here's what it said:

"Software licence agreement. We, Microsoft Corporation ("God"), grant you ("powerless supplicant") a non-exclusive licence to use the accompanying software (a £250 program on a 50p CD – with no printed manual, by the way). You are not permitted to lease, rent, distribute, sub-licence, disassemble, reverse-engineer, forward-engineer, sideways-engineer, or dislike the software. In fact, we'd sort of appreciate it if you wouldn't say bad things about the software in public.

"This agreement gives you the right to install one (1) copy of the software on one (1) computer within thirty (30) days of reading this agreement, not because we care how many times you install it, but because we think our customers are idiots who can't understand numbers unless we write them out two (2) times.

"You agree that our installer may spray your System Folder with dozens of extensions, shared libraries, control panels, preference files, fonts, and other crud, without asking first or providing a list of why we put what where. If your computer is unstable as a result, you agree not to investigate allegations that we've entered into a secret conspiratorial cross-promotional relationship with Symantec, maker of Norton Utilities.

"This software is warranted to become obsolete after six (6) months, at which time the Software Company will offer an upgrade for a reasonable (exorbitant) fee. Such upgrades may also be required when Apple Computer releases a new operating-system version, alters the terms of its developer program, or sneezes. At our sole discretion, we may, in these subsequent upgrades, add RAM-hogging features nobody asked for, change keystroke sequences it's taken you three years to learn, or arbitrarily remove features you've grown to love. You agree to enter this lifelong treadmill of upgrades willingly and happily and not to stumble onto the fact that AppleWorks does most of what our stuff does but at twice the speed, half the cost, and ⅓₀₀ the RAM.

"Under no circumstances shall we be liable for any incidental, consequential, or future damages arising from the use of this product. In other words, if your kids whip the CD around like a Frisbee or use it as a body-piercing ornament, that's really not our problem.

"This licence agreement is effective until terminated – a lot like you, actually. You may terminate the agreement at any time by destroying the software, documents you've created with it, and computers you've run the software on.

"You understand that I'm just an overpaid lawyer, one of 50,000 Silicon Valley legal drones toiling in climate-controlled offices somewhere, and that it doesn't really matter whether or not you accept this agreement. I've got no way of knowing if you're being a good little camper; in the history of software, nobody's ever been prosecuted for installing two (2) or even three (3) copies of this program. In fact, in the history of software, I doubt anyone's even read one of these Licence Agreements all the way through. I'd be quite surprised, in fact, if you're still reading this one. Nobody ever scrolls down this far. You probably clicked on Accept a long time ago and are now confronting a screen full of tool bars with inscrutable icons and no labels.

"I never wanted to be a lawyer, you know. My parents pressured me into it. I wanted to be – a lumberjack! No, wait – a novelist. Yeah, that's it! And this is the perfect publication – 100 million copies of this document get distributed every year. Let's see here: "Heart pounding, Sparrow brushed her long blond hair out of her eyes. The .45 made a cold, hard companion pressed against the white satin of her nightgown. As the bombs began to fall on the city, she clutched the ledge of the skyscraper. 'Don't look down,' she thought. . . ."

MW